Jenkins, Ray (DEQ)

From:

Jenkins, Ray (DEQ)

Sent:

Wednesday, May 16, 2012 4:04 PM

To:

'Ellinghaus, Matthew B.'

Subject:

RE: TWWTP Application Updates

Thanks Matt. This information completes the permit renewal application.

One question about the temperature data you sent. What does the following column heading mean:

PInt If Temp Water C Degrees C Daily

From: Ellinghaus, Matthew B. [mailto:mbellinghaus@hanovercounty.gov]

Sent: Wednesday, May 16, 2012 1:21 PM

To: Jenkins, Ray (DEQ)

Subject: TWWTP Application Updates

Ray -

Attached is a pdf with all the updated pages as we discussed, along with the additional NH3 data sheets and the public notice authorization. Also the accompanying excel is a data dump for temperature covering a larger timeframe that originally included in the original submission.

If you have any questions or need the originals, please let me know.

Thanks,

Matt

Matthew Ellinghaus Assistant Chief of Operations & Maintenance Hanover County Public Utilities (804) 365-6701 (office) (804) 365-6705 (fax)

YPDES Permit Application Addendum

	Entity to whom the permit is to be issued: Hanover County
 	ho will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be efacility or property owner.
2.	Is this facility located within city or town boundaries? Y/\sqrt{3}
3,	What is the tax map parcel number for the land where this facility is located? 8726-62-7679
4.	For the facility to be covered by this permit, how many acres will be disturbed during the next five years due to new construction activities? None
5.	ALL FACILITIES: What is the design average flow of this facility? 7.0 MGD Industrial facilities: What is the max. 30-day avg. production level (include units)?
	In addition to the above design flow or production level, should the permit be written with limits for any other discharge flow tiers or production levels? \bigcirc / \bigcirc / \bigcirc
	If AYes≅, please specify the other flow tiers (in MGD) or production levels; . 10.0
Pl da	ease consider: Is your facility=x design flow considerably greater than your current flow? Do you plan to expand operations wing the next five years?
6.	Nature of operations generating wastewater: Municipal wastewater treatment
	99.4% of flow from domestic connections/sources Number of private residences to be served by the wastewater treatment facilities: 0 1-49 X 50 or more
	0.6 % of flow from non-domestic connections/sources
7.	Mode of discharge: X_ContinuousIntermittentSeasonal Describe frequency and duration of intermittent or seasonal discharges:
ŝ.	Identify the characteristics of the receiving stream at the point just above the facility=s discharge point:
	Permanent stream, never dry Intermittent stream, usually flowing, sometimes dry
	Ephemeral stream, wet-weather flow, often dry
	Effluent-dependent stream, usually or always dry
	Lake or pond at or below the discharge point X Other: Tidal River
),	Approval Date(s):
	O & M Manual September 2010 Sludge/Solids Management Plan September 2004
	Have there been any changes in your operations or procedures since the above approval dates? Y (S)

FACILITY NAME AND I			ant - V	4008991	5						proved 1/14/99 mber 2040-0086
A.11. Description of Tr	eatment.					1	**************************************				
a. What levels of	treatment a	are provi	ded? C	heck all th	at apply.						
Pi	imary			<u>√</u> S∈	econdary						
A	dvanced			01	her. Describe:	Biological	Nutrient Re	mova	ıl		
b. Indicate the fo	llowing rem	oval rate	es (as a	pplicable):							
Design BOD ₅	removal <u>or</u> l	Design (CBOD _s i	removal		<u>99 (</u>	actual)		%		
Design SS rer	noval					99 (actual)		%		
Design P rem	oval					99 (actual)	·····	%		
Design N rem	oval					96 (actual)		%		
Other			_			***************************************			%		
c. What type of c	isinfection i	is used f	or the e	ffluent fror	n this outfall? If dis	infection varies	s by season,	pleas	e describe.		
Ultra-violet l	ight disinfe	ection									
If disinfection i	s by chlorin	ation, is	dechloi	rination us	ed for this outfall?		,	Yes			No
d. Does the treat	ment plant l	have po:	st aerati	ion?		~	√ .	Yes			No
parameters. Prov discharged. Do r	ide the ind ot include	lcated e	ffluent ation or	testing re	d sewer overflow	mitting autho s in this secti	rity <u>for eacl</u> on. All info	outf matic	all through on reported	which must	r the following n effluent is the based on da
parameters. Prov discharged. Do r collected through of 40 CFR Part 13 At a minimum, ef	ide the Ind not include nanalysis o 6 and othe fluent testi	Icated e Informa conduct er appro	ffluent ation or ed usir priate (testing re n combine ng 40 CFR QA/QC rec	quired by the per of sewer overflow Part 136 method puirements for sta	mitting authors in this section. In addition indard methor	rity <u>for eacl</u> on. All info , this data n ds for analy	n outformation nust content tes ne	all through on reported omply with ot address	which must QA/C ed by	r the following n effluent is be based on da QC requirements 40 CFR Part 136.
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parameters. Prov discharged. Do r collected through of 40 CFR Part 13 At a minimum, ef	Ide the Ind not include a analysis of 6 and othe fluent testi	Icated e Informa conduct er appro	offluent ation or ed usir priate (must b	testing rent combined to CFR QA/QC rect based of MAXIMUM	quired by the per d sewer overflow Part 136 method: julrements for sta on at least three s	mitting autho s in this secti s. In addition indard methor amples and m	rity for each on. All info , this data n ds for analy nust be no r AV	n outformation out	all through on reported omply with ot addresse han four an E DAILY V	which I must I QA/G ed by and one	r the following neffluent is be based on dat C requirements 40 CFR Part 136. e-half years apar
parameters. Prov discharged. Do r collected through of 40 CFR Part 13 At a minimum, ef	Ide the Ind not include a analysis of 6 and othe fluent testi	Icated e Informa conduct er appro	offluent ation or ed usir priate (must b	testing re n combine ng 40 CFR QA/QC red pe based d	quired by the per id sewer overflow Part 136 method: juirements for sta on at least three s	mitting authors in this section. In addition indard methor	rity for each on. All info , this data n ds for analy nust be no r AV	n outformation out	all through on reported omply with ot addresse han four a	which I must I QA/G ed by and one	r the following n effluent is be based on da QC requirements 40 CFR Part 136.
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parameters. Prov discharged. Do r collected through of 40 GFR Part 13 At a minimum, ef Outfall number: PARAMET H (Minimum) H (Maximum) How Rate emperature (Winter) emperature (Summer) * For pH please re	ide the Indicate Include analysis of and other fluent testing the Indicate Include Inc	Icated e Informaconductor approng data	ffluent atlon or ed usir priate (must be with the first	testing re n combine ng 40 CFR QA/QC rec oe based co MAXIMUM Value	quired by the per d sewer overflow Part 136 methods purements for state on at least three so DAILY VALUE Units s.u. s.u. MGD C Value AVERAG	witting authors in this section. In addition and method amples and	rity for each on. All info , this data n ds for analy nust be no r AV e M C C	n outformation matter matter than the control of th	all through on reported omply with of addresse han four an	which must must be a QA/C and one which the property of the pr	r the following n effluent is be based on dat QC requirements 40 CFR Part 136. e-half years apar
parameters. Prov discharged. Do r collected through of 40 GFR Part 13 At a minimum, ef Outfall number: PARAMET H (Minimum) H (Maximum) low Rate emperature (Winter) * For pH please re POLLUTANT	ide the Indicate Include in analysis of and other fluent testion of the Indicate Included in the Indicate Included in the Indicate Included in Indicate Indicate Included in Indicate Included Include	num and	ffluent atlon or ed usir priate (must be with the control of the c	testing rendered to the combine of t	quired by the per d sewer overflow Part 136 methods pure ments for state on at least three s. DAILY VALUE Units s.u. s.u. MGD C C value AVERAG	witting authors in this section. In addition and are method amples and method amples	erity for each on. All info, this data new first for analy nust be no reach of the first formal of the fir	n outformation matter matter than the control of th	all through on reported omply with of addresse han four an	which must must be a QA/C and one which the property of the pr	r the following n effluent is be based on dat QC requirements 40 CFR Part 136. e-half years apar
parameters. Providischarged. Do ricollected through of 40 CFR Part 13 At a minimum, effortier of the control of	ide the Indicate Include in analysis of and other fluent testion of the Indicate Included in the Indicate Included in the Indicate Included in Indicate Indicate Included in Indicate Included Include	num and	ffluent atlon or ed usir priate (must be with the control of the c	testing rendered to combine the combine of the comb	quired by the per d sewer overflow Part 136 methods pure ments for state on at least three s. DAILY VALUE Units s.u. s.u. MGD C C value AVERAG	witting authors in this section. In addition and are method amples and method amples	erity for each on. All info, this data new first for analy nust be no reach of the first formal of the fir	n outformation matter matter than the control of th	all through on reported omply with of addresse han four an	which must must be a QA/C and one which the property of the pr	r the following n effluent is be based on dat QC requirements 40 CFR Part 136. e-half years apar

END OF PART A.

MG/L

MG/L

365

52

S.M 9223D

S.M 2540D,A

8.8

3.2

N/CML

MG/L

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

1.0 cfu/100ml

1.0 mg/l

199

6.6

FECAL-COLIFORM-(E. coli)

TOTAL SUSPENDED SOLIDS (TSS)

Form Approved 1/14/99 FACILITY NAME AND PERMIT NUMBER: OMB Number 2040-0086 Totopotomoy Wastewater Treatment Plant - VA0089915 If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable). Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible. Schedule **Actual Completion** MM / DD / YYYY MM / DD / YYYY Implementation Stage - Begin construction ___/___/____ - End construction - Begin discharge - Attain operational level Have appropriate permits/clearances concerning other Federal/State requirements been obtained? B.6. EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

POLLUTANT		NUM DAILY CHARGE	AVER/	AGE DAILY DIS	CHARGE		
	Conc.	Units	Conc.	Units	Number of Samples	ANALYTICAL METHOD	ML/MDL
CONVENTIONAL AND NO	CONVENTION	IAL COMPOUNI	os.				
AMMONIA (as N)	<0.20	mg/I	<0.20	mg/l	3	EPA 350.1	0.20 mg/l
CHLORINE (TOTAL RESIDUAL, TRC)	<0.1	mg/l	<0.1	mg/l	3	Hach 8167	0.1 mg/l
DISSOLVED OXYGEN	13.36	mg/l	8.9	mg/l	1095	S.M 4500-O G	0.1 mg/l
TOTAL KJELDAHL NITROGEN (TKN)	6.8	mg/l	1.5	mg/l	1095	S.M 4500NH3F	0.050 mg/l
NITRATE PLUS NITRITE NITROGEN	7.3	mg/l	6.26	mg/I	156	EPA 351.2	0.05 mg/l
OIL and GREASE	<5.0	mg/l	<5.0	mg/l	3	EPA 1664A	5.0 mg/l
PHOSPHORUS (Total)	1.6	mg/i	0.3	mg/l	156	SM 4500-P B.5	0.1 mg/l
TOTAL DISSOLVED SOLIDS (TDS)	436	mg/l	391	mg/l	3	SM2540C	1.0 mg/i
OTHER							

END OF PART B.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

Form Approved 1/14/99
OMB Number 2040-0086

FACILITY NAME AND PERMIT NUMBER:

Toto	potomoy Wastewater	Treatment Plant - VA0089915	OMB NUMBER 2040-0000
su	PPLEMENTAL .	APPLICATION INFORMATION	
All t		AL USER DISCHARGES AND RCRA/CEI	RCLA WASTES which receive RCRA, CERCLA, or other remedial wastes must
GE	NERAL INFORMAT	ION:	
F.1.	Pretreatment Program	Does the treatment works have, or is it subject to, a	an approved pretreatment program?
F.2,		t Industrial Users (SIUs) and Categorical Industria discharge to the treatment works.	I Users (CIUs). Provide the number of each of the following types
	a. Number of non-cate	egorical SIUs. 0	
	b. Number of ClUs.	1	
SIG	NIFICANT INDUST	RIAL USER INFORMATION:	
Suppand	ply the following inform provide the information	nation for each SIU. If more than one SIU discharen requested for each SIU.	ges to the treatment works, copy questions F.3 through F.8
F.3.	Significant Industrial I pages as necessary.	User Information. Provide the name and address of	each SIU discharging to the treatment works. Submit additional
	Name:	Hanover Manufacturing Plant	
	Mailing Address:	10117 Leadhetter Place, Ashland, VA 23005	-3257
F.4.	Industrial Processes.	Describe all of the industrial processes that affect or	contribute to the SIU's discharge.
	Manufacturing of ex	truded aluminum products, aluminum forming a	nd plastic processing.
F.5.	Principal Product(s) a discharge.	and Raw Material(s). Describe all of the principal pro	ocesses and raw materials that affect or contribute to the SIU's
	Principal product(s):	Extruded aluminum wire (coated and uncoate	d).
	Raw material(s):	Aluminum wire stock, polymer beads	
F.6.	Flow Rate.		
	a. Process wastewate per day (gpd) and v	whether the discharge is continuous or intermittent.	ess wastewater discharged into the collection system in gallons
	b. Non-process waste system in gallons p	water flow rate. Indicate the average daily volume of er day (gpd) and whether the discharge is continuous	non-process wastewater flow discharged into the collection or intermittent.
	<u>1,700</u> gr	od (continuous orintermittent)	
F.7.	Pretreatment Standard	s. Indicate whether the SIU is subject to the following	g:
	a. Local limits	Yes ✓ No	
	b. Categorical pretrea	tment standardsYesNo	
		pretreatment standards, which category and subcate	gory?
		bpart C (Aluminum Forming - Extrusion)	

FACILITY NAME AND PERMIT NUMBER:	Form Approved 1/14/99 OMB Number 2040-0086
Totopotomoy Wastewater Treatment Plant - VA0089915	Omb Natitibel 2040-0005
F.8. Problems at the Treatment Works Attributed to Waste upsets, interference) at the treatment works in the past the	Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., nree years?
Yes ✓ No If yes, describe each episor	Je.
4-2	
RCRA HAZARDOUS WASTE RECEIVED BY TRUCK,	RAIL, OR DEDICATED PIPELINE:
F.9. RCRA Waste. Does the treatment works receive or has pipe?YesNo (go to F.12.)	it in the past three years received RCRA hazardous waste by truck, rail, or dedicated
F.10. Waste Transport. Method by which RCRA waste is rec	eived (check all that apply):
TruckRailDed	icated Pipe
F.11. Waste Description. Give EPA hazardous waste number	er and amount (volume or mass, specify units).
·	mount <u>Units</u>
	- Andrewson and
CERCLA (SUPERFUND) WASTEWATER, RCRA REMACTION WASTEWATER, AND OTHER REMEDIAL ACTION	
F.12. Remediation Waste. Does the treatment works current	ly (or has it been notified that it will) receive waste from remedial activities?
Yes (complete F.13 through F.15.)	No
Provide a list of sites and the requested information (F.1	3 - F.15.) for each current and future site.
F.13. Waste Origin. Describe the site and type of facility at win the next five years).	hich the CERCLA/RCRA/or other remedial waste originates (or is expected to origina
F.14. Pollutants. List the hazardous constituents that are reco	eived (or are expected to be received). Include data on volume and concentration, if
F.15. Waste Treatment.	
a. Is this waste treated (or will it be treated) prior to enter	ering the treatment works?
YesNo	
If yes, describe the treatment (provide information ab	out the removal efficiency):
b. Is the discharge (or will the discharge be) continuous	or intermittent?
ContinuousIntermittent	If intermittent, describe discharge schedule.
	ND OF PART F.
	IND OF PARTE. FW TO DETERMINE WHICH OTHER PARTS OF FORM

2A YOU MUST COMPLETE

REPORT OF ANALYSIS

CLIENT:

Hanover County

ATTN:

David Madumadu

ADDRESS:

9015 Pole Green Park Lane

Mechanicsville, VA 23116

PHONE:

804-365-6720

FAX:

804-365-6725

Special Notes:

RE: Totopotomoy WWTP

SAMPLE COLLECTED BY: CLIENT

GRAB COLLECTION:

Date:

Time:

COMPOSITE COLLECTION:

Start Date: 04/02/12 Time: 0800

End Date: 04/03/12 Time: 0800

PICK UP BY: REED - LL SAMPLE RECEIPT:

Date: 4/3/12

Time: 1440

NUMBER OF CONTAINERS: 1

SAMPLE CONDITION: ☑ Good ☐ Other (See C-O-C)

REPORT NO: 12-05026 8:14

SAMPLE ID:

2012-598 FE

SAMPLE NO:

12-05026

Parameter	Method .· Number	JRA QL	Result	Unit	Analyst 1	Date	Time
Total Phosphorus	365.1	0.10	0.19	mg/L	EFA 4	4/4/12	1335
Total Nitrogen	351.2/353.2	0.5	7.4	mg/L	EFA 4	4/9/12	1137
Total Kjeldahl Nitrogen	351.2	0.50	1.96	mg/L	LEF 4	1/6/12	1204
Nitrate/Nitrite	353.2	0.05	5.47	mg/L	EFA 4	1/6/12	1352
Ammonia	*4500NH3D	0.10	< 0.10	mg/L	ARC 4	1/9/12	0815
Ammonia	*45U0NH3D	0.10	< 0.10	mg/L	ARC 4	1/9/12	

JRA Quantification Level is the concentration of the lowest calibration standard above zero with a reliable signal.

Reproduction of this report is not permitted, except in full, without written approval from James R Reed & Associates.

The results on this report relate only to the sample(s) provided for analysis.

Results conform to NELAC standards, where applicable, unless otherwise indicated.

*SM 20 Ed.

Authorized By:

Elaine Claiborne, Laboratory Director

Date: 10-Apr-12

James R. Reed & Associates 770 Pilot House Drive, Newport News, VA 23606 (757) 873-4703 • Fax: (757) 873-1498

VELAP# 460013 EPA# VA00015



REPORT OF ANALYSIS

CLIENT:

Hanover County

ATTN:

David Madumadu

ADDRESS:

9015 Pole Green Park Lane

Mechanicsville, VA 23116

PHONE:

804-365-6720

FAX:

804-365-6725

Special Notes:

RE: Totopotomoy WWTP

SAMPLE COLLECTED BY: CLIENT

GRAB COLLECTION:

Date:

Time:

COMPOSITE COLLECTION:

Start Date: 04/09/12 Time: 0800

End Date: 04/10/12 Time: 0800

PICK UP BY: REED - LL

SAMPLE RECEIPT:

Date: 4/10/12

Time: 1425

NUMBER OF CONTAINERS: 1

SAMPLE CONDITION: ✓ Good ☐ Other (See C-O-C)

12-05437 7:49 REPORT NO:

SAMPLE ID:

2012-647 FE

SAMPLE NO: 12-05437

Parameter	Method Number	JRA QL	Result	Unit	Analys	st Date	Time
Total Phosphorus	.365.1	0.10	0.20	mg/L	EFA	4/12/12	1441
Total Nitrogen	351.2/353.2	0.5	5.5	mg/L	LEF	4/19/12	0838
Total Kjeldahl Nitrogen	351.2	0.50	1.47	mg/L	LEF	4/18/12	1306
Nitrate/Nitrite	353.2	0.05	4.06	mg/L	EFA	4/13/12	1411
Ammonia	*4500NH3D	0.10	< 0.10	mg/L	ARC	4/13/12	0815

NOTES:

JRA Quantification Level is the concentration of the lowest calibration standard above zero with a reliable signal.

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The results on this report relate only to the sample(s) provided for analysis.

Results conform to NELAC standards, where applicable, unless otherwise indicated.

*SM 20 Ed.

Authorized By: Elaine Clarke

Elaine Claiborne, Laboratory Director

Date: 20-Apr-12

James R. Reed & Associates

770 Pilot House Drive, Newport News, VA 23606

(757) 873-4703 • Fax: (757) 873-1498

VELAP# 460013 **EPA# VA00015**



AUTHORIZATION TO BILL APPLICANT FOR A PUBLIC NOTICE

I hereby authorize the Department of Environmental Quality to have the cost of publishing a public notice once a week for two consecutive weeks, seven days apart, in The Richmond Times-Dispatch, charged to:

Agent or Department to be billed:	Hanover County Department of Public Utilities
	ATTN: Dave Van Gelder
Agent's telephone number:	804-365-6235
Agent's address:	P.O. Box 470
	Hanover, VA 23069
Authorizing Agent:	Jash Mal
Additionably Agent.	Signature

VPDES Permit Number VA0089915 – Totopotomoy Wastewater Treatment Plant Attention: Ray Jenkins

Jenkins, Ray (DEQ)

From:

Jenkins, Ray (DEQ)

Sent:

Tuesday, April 03, 2012 3:52 PM

To:

Ellinghaus, Matthew B.

Subject:

Totopotomoy WWTP -- Permit Renewal Application

Matt, I've reviewed the permit renewal application for the Totopotomoy WWTP.

To follow-up on our telephone conversation today, the following revisions are to be made:

1. On page 6 of Form 2A the MDL for cBOD₅ will be changed to 2 mg/L.

Also on page 6, I understand that the fecal data that are presented are actually *E. coli* data. That will be noted on the form or just noted in your response.

- 2. On page 8 of Form 2A, two more ammonia samples are needed.
- 3. Part F (page 18) of Form 2A will be completed.
- 4. Question #6 in the VPDES Permit Addendum Application will be adjusted to reflect the industrial contribution from the Hanover Manufacturing facility.
- 5. Please complete and return the public notice authorization form. The application will not be considered complete until this form is submitted.

I forgot to request that you send me the individual data points on effluent temperature. I will use these data in my effluent limitation evaluation.

Given the ammonia sampling that is needed, I understand that the above revisions will be submitted in three to four weeks.

I appreciate the effort you put into completing this application. I consider the above to be a very short list of revisions.

Thanks

Ray R. Jenkins, Jr. Environmental Specialist Senior

Telephone: 804/527-5037

E-mail: ray.jenkins@deq.virginia.gov

Fax: 804/527-5106

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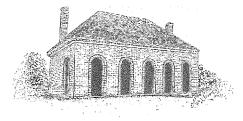
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Website: www.co.hanover.va.us

FRANK W. HARKSEN, JR. DEPUTY COUNTY ADMINISTRATOR

February 27, 2012

HAND DELIVERED

RECEIVED
FEB 2.7 2012
PRO

Mr. Ray Jenkins DEQ-PRO 4949-A Cox Road Glen Allen, VA 23060

RE: Totopotomoy Wastewater Treatment Plant (VA0089915) VPDES Application

Dear Mr. Jenkins:

Enclosed is the original signed application for the re-issuance of VA0089915 and four copies as requested in your re-issuance reminder email. If you have any questions about this application, please call (804) 365-6701 or email me at mbellinghaus@co.hanover.va.us. Thank you for your time.

Sincerely,

Matthew Ellinghaus

Assistant Chief of Operations & Maintenance

Form Approved 1/14/99 OMB Number 2040-0086

Totopotomoy Wastewater Treatment Plant - VA0089915

FORM

2A NPDES

NPDES FORM 2A APPLICATION OVERVIEW

APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

- A. Basic Application Information for all Applicants. All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.
- B. Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd. All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.
- C. Certification. All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):
 - 1. Has a design flow rate greater than or equal to 1 mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):
 - 1. Has a design flow rate greater than or equal to 1 mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - Is otherwise required by the permitting authority to submit results of toxicity testing.
- F. Industrial User Discharges and RCRA/CERCLA Wastes. A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:
 - 1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
 - 2. Any other industrial user that:
 - a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
 - b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
 - c. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

Totopotomoy Wastewater Treatment Plant - VA0089915

Form Approved 1/14/99 OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PAF	RT A. BASIC APPL	ICATION INF	ORMATION FOR ALL	APPLICANTS:	
All ti	eatment works mus	t complete que	stions A.1 through A.8 of	this Basic Application Information pa	acket.
A.1.	Facility Information	1.			
	Facility name	Totopotomoy	Wastewater Treatment	Plant	
	Mailing Address	P.O. Box 470 Hanover, VA			
	Contact person	David Van Ge	elder		
	Title	Chief of Oper	ations & Maintenance		
	Telephone number	(804) 365-62	35		
	Facility Address (not P.O. Box)	9015 Pole Gr Mechanicsvill	een Park Lane e, VA 23116		
A.2.	Applicant Informati	ion. If the applic	ant is different from the abo	ove, provide the following:	
	Applicant name	Same As Abo	ve		
	Mailing Address				
	Contact person				
	Title				
	Telephone number	***************************************			
	Is the applicant the	owner or opera	tor (or both) of the treatn	nent works?	
	Indicate whether con	respondence reg	arding this permit should b applicant	e directed to the facility or the applicant	
A.3.	Existing Environme works (include state-	ental Permits. Pissued permits).	rovide the permit number of	of any existing environmental permits the	at have been issued to the treatment
	NPDES <u>VA00899</u>	15, VAN03005	1	PSD	
A.4.	each entity and, if kneetc.).	nformation. Pro own, provide info	ovide information on munic ormation on the type of colle	ipalities and areas served by the facility ection system (combined vs. separate) a	Provide the name and population of and its ownership (municipal, private,
	Name		Population Served	Type of Collection System	Ownership
	Parts of Hanover C	County	Approx. 25,000	Separate	Municipal
	Total non	ulation served	Approx. 25,000		

FAC	ILIT	Y NAME AND PERMIT NUMBER:					Form Approve OMB Number	
Totop	ootc	moy Wastewater Treatment Plant - VA	.0089915	epotential travel			OWE IVAILED	2040-0000
A.5.	lne	lian Country.						
	a.	Is the treatment works located in Indian Co	ountry?					
		Yes √ No	•					
	b.	Does the treatment works discharge to a re	eceiving water that is either in	Indian Country	or that is up:	stream fro	m (and eventu	ally flows
		through) Indian Country?						
		Yes ✓ No						
A.6.	av	ow. Indicate the design flow rate of the treat erage daily flow rate and maximum daily flow riod with the 12th month of "this year" occur	w rate for each of the last thre	e years. Each y	ear's data m	ust be bas		
	a.	Design flow rate 7.0 mgd						
			Two Years Ago	Last Year		This Ye	ear	
	b.	Annual average daily flow rate	1.12		1.88	····	2.4	<u>43</u> mgd
	C.	Maximum daily flow rate	2.14		3.63	***************************************	4,9	98 mgd
A.7.		Ilection System. Indicate the type(s) of contribution (by miles) of each.	llection system(s) used by the	treatment plant	. Check all t	hat apply.	Also estimate	the percent
		Separate sanitary sewer					10	00 %
		Combined storm and sanitary sewer				***************************************	· · · · · · · · · · · · · · · · · · ·	
		Combined storm and samilary sewer						%
A.8.	Dis	scharges and Other Disposal Methods.						
	a.	Does the treatment works discharge efflue	nt to waters of the U.S.?			Yes	-	No
		If yes, list how many of each of the following	ng types of discharge points th	e treatment wor	rks uses:			
		i. Discharges of treated effluent					1	
		ii. Discharges of untreated or partially treated	ated effluent				N/A	
		iii. Combined sewer overflow points					N/A	
		iv. Constructed emergency overflows (price	or to the headworks)				N/A	
		v. Other					N/A	
	b.	Does the treatment works discharge effluer impoundments that do not have outlets for				Yes	√	No
		If yes, provide the following for each surface	· ·					
		Location	-					
		Annual average daily volume discharged to					mgd	
		Is discharge continuous or	intermittent?	-				
	C.	Does the treatment works land-apply treate	ed wastewater?			Yes	✓	No
		If yes, provide the following for each land a	pplication site:					
		Location:					····	· · · · · · · · · · · · · · · · · · ·
		Number of acres:						
		Annual average daily volume applied to site	9:	M	lgd			
		Is land application continuo	us or intermitte	ent?				

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works?

____Yes

FACILITY NAME AND PERMIT NUMBER: Totopotomoy Wastewater Treatment Plant - VA0089915 Form Approved 1/14/99 OMB Number 2040-0086

If transport is by a part	y other than the	applicant,	provide:						
Transporter name:									
Mailing Address:		***************************************			· · · · · · · · · · · · · · · · · · ·				
			M-41						***************************************
Contact person:	***************************************								
Title:	***************************************					····			
Telephone number:	·								
Name: Mailing Address:			\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\					·····	·

Contact person:									
Contact person: Title:									
,									
Title:									
Title: Telephone number:	PDES permit nui	mber of the	e treatment	works that rec	eives this disch				mg
Title: Telephone number: If known, provide the N	PDES permit nui	mber of the treatm	e treatment v nent works in	works that receiving the the receiving terms that the receiving terms are mannered.	eives this disch	arge.	Yes		mg
Title: Telephone number: If known, provide the N Provide the average da Does the treatment wo	PDES permit nuiting flow rate from this discharge or over (e.g., undergote	mber of the the treatn dispose of tround perc	e treatment v nent works in tits wastewa colation, wel	works that receiving the the receiving terms that the receiving terms are mannered.	eives this disch	arge.	Yes		

FACILITY NAME AND PERMIT NUMBER:

Totopotomoy Wastewater Treatment Plant - VA0089915

Form Approved 1/14/99
OMB Number 2040-0086

WASTEWATER	DISCHAR	GFS.

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 once for each outfall (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. If you answered "no" to question A.8.a, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

De	escription of Outfall.	ı	
a.	Outfall number	001	
b.	Location	Mechanicsville	23116
		(City or town, if applicable) Hanover	(Zip Code) Virginia
		(County)	(State)
		37 degrees, 40.225 min	nutes N 077 degrees, 11.493 minutes N (Longitude)
		,	
C.	Distance from shore	e (if applicable)	<u>40</u> ft.
d.	Depth below surface	e (if applicable)	24 ft.
e.	Average daily flow ra	rato	2.43 mgd
٥.	, ivorage daily non it		Tiga
f.	Does this outfall hav	ve either an intermittent or a	
	periodic discharge?		Yes No (go to A.9.g.)
	If wer provide the fo	ollowing information:	
	ii yes, provide tile io	mowing information.	
	Number of times per	r year discharge occurs:	
	Average duration of	each discharge:	
	Average flow per dis	•	and a
		· ·	mgd
	Months in which disc	charge occurs:	AMPLIANCE CONTRACTOR AND COLUMN CONTRACTOR C
g.	Is outfall equipped w	with a diffusor?	√ Yes No
Э.	is sailan squipped in	nar a amador.	100
n-	andresian of December		
. De	scription of Receiving	ng waters.	
a.	Name of receiving w	vater Pamunkey Rive	/er
b.	Name of watershed	(if known)	York River Watershed
	United States Soil Co	Conservation Service 14-digit wa	atershed code (if known): Unknown
C.	Name of State Mana	agement/River Basin (if known):	York River Basin
	United States Coole	ainal Cupiau O diait budanta sia	and a large and the state of the same
	Officed States Geolog	gical Survey 6-digit hydrologic (cataloging unit code (if known): Unknown
d.	Critical low flow of re	eceiving stream (if applicable):	
	acute 54		chronic cfs
e			ow (if applicable):Unknown_mg/l of CaCO ₃
· ·		sorting stream at Gillicar IOW IIO	or in approadicy.

Totopotomoy Wastew	/A008991					OME						
A.11. Description of To	reatment.											
a. What levels o	f treatment	are provi	ided? (Check all th	nat a	ipply.						
P	rimary			_ √ s	ecor	ndary						
A	dvanced			C	ther	Describe:	Biological	Nutrient F	lem	noval		
b. Indicate the fo	ollowing ren	noval rate	es (as	applicable)	:							
Design BOD ₅	removal <u>or</u>	Design (CBOD	removal			99	(actual)		%		
Design SS rei	moval						99	(actual)		%		
Design P rem	oval			99	(actual)		%					
Design N rem	oval						96	(actual)		%		
Other										%		
c. What type of c	disinfection	is used f	or the	effluent fro	m th	is outfall? If dis	infection varie	es by seasor	ı, pl	ease describ	e.	
Ultra-violet	light disinf	ection										
If disinfection	is by chlorii	nation, is	dechlo	orination us	ed f	or this outfall?			Yes	s		No
d. Does the treat	ment plant	have pos	st aera	ition?							No	
parameters. Prov discharged. Do i collected through of 40 CFR Part 13	ride the ind not include n analysis 36 and othe	dicated e e informa conduct er appro	ffluen ation o ed usi priate	t testing re on combine ing 40 CFF QA/QC re	equi ed s R Pai guire	red by the per ewer overflow rt 136 methods ements for sta	mitting authors in this sect in this sect in addition ndard metho	ority <u>for eac</u> tion. All info n, this data ods for anal	h o orma mus vtes	outfall through ation reporte st comply wi s not addres	th wed noted that the contract of the contract	rhich effluent is nust be based on d QA/QC requirement by 40 CFR Part 13
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2A YOU MUST COMPLETE

Totopotomoy Wastewater Treatment Plant - VA0089915

Form Approved 1/14/99 OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day). All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification). B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration. Unknown apd Briefly explain any steps underway or planned to minimize inflow and infiltration. See Attachment 1 for description. B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.) a. The area surrounding the treatment plant, including all unit processes. b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable. c. Each well where wastewater from the treatment plant is injected underground. d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant. e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or See Attachment 2 B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g., chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram. See Attachment 3 B.4. Operation/Maintenance Performed by Contractor(s). Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a ___Yes ✓ No If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary). Name: _ Mailing Address: _ Telephone Number: Responsibilities of Contractor: B.5. Scheduled Improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.) See Attachment 4 for facility expansion plan List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

___Yes ✓ No

FACILITY NAME AND PERMIT NUMBER: Form Approved 1/14/99 OMB Number 2040-0086 Totopotomoy Wastewater Treatment Plant - VA0089915 If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable). Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible. Schedule **Actual Completion** Implementation Stage MM / DD / YYYY MM / DD / YYYY ____/ ____/ _____ - Begin construction _____/ ____/ _____ - End construction ____/ ____/ _____ ___/ ___/ ____ - Begin discharge ___/ ___/ ____ - Attain operational level Have appropriate permits/clearances concerning other Federal/State requirements been obtained? Yes No Describe briefly: B.6. EFFLUENT TESTING DATA (GREATER THAN O.1 MGD ONLY). Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old. Outfall Number: 001 AVERAGE DAILY DISCHARGE POLLUTANT MAXIMUM DAILY DISCHARGE Conc. Units Conc. Units Number of **ANALYTICAL** ML / MDL METHOD Samples CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS. AMMONIA (as N) < 0.20 mg/l < 0.20 1 mg/l EPA 350.1 0.20 mg/l CHLORINE (TOTAL < 0.1 RESIDUAL, TRC) mg/l < 0.1 mg/l 3 Hach 8167 0.1 mg/l DISSOLVED OXYGEN 13.36 8.9 mg/l mg/l 1095 S.M 4500-O G 0.1 mg/l TOTAL KJELDAHL 6.8 1.5 mg/l mg/l 1095 S.M 4500NH3F 0.050 mg/l NITROGEN (TKN) NITRATE PLUS NITRITE

END OF PART B. REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

mg/l

mg/l

mg/l

mg/l

156

156

3

3

EPA 351.2

EPA 1664A

SM2540C

SM 4500-P B.5

6.26

<5.0

0.3

391

7.3

<5.0

1.6

436

NITROGEN OIL and GREASE

PHOSPHORUS (Total)

TOTAL DISSOLVED

SOLIDS (TDS)

OTHER

mg/l

mg/l

mg/l

mg/l

0.05 mg/l

5.0 mg/l

0.1 mg/l

1.0 mg/l

FACILITY NAME AND PE	RMIT NUMBER:	Form Approved 1/14/99 OMB Number 2040-0086				
Totopotomoy Wastewat	er Treatment Plant - VA00899	915	Olivia Nutriber 2040-0000			
BASIC APPLICA	TION INFORMATION					
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PART C. CERTIFICAT						
applicants must complete have completed and are s	all applicable sections of Form 2/	A, as explained in the Ap ation statement, applicar	mine who is an officer for the purposes of this certification. All olication Overview. Indicate below which parts of Form 2A you ts confirm that they have reviewed Form 2A and have completed			
Indicate which parts of F	Form 2A you have completed as	nd are submitting:				
Basic Applica	tion Information packet Sup	pplemental Application Ir	formation packet:			
		Part D (Expanded	Effluent Testing Data)			
		Part E (Toxicity Te	sting: Biomonitoring Data)			
		Part F (Industrial U	ser Discharges and RCRA/CERCLA Wastes)			
		Part G (Combined	Sewer Systems)			
ALL APPLICANTS MUST	COMPLETE THE FOLLOWING	CERTIFICATION.				
designed to assure that que who manage the system of	alified personnel properly gather in those persons directly responsil complete. I am aware that there	and evaluate the informable for gathering the info	inder my direction or supervision in accordance with a system ition submitted. Based on my inquiry of the person or persons mation, the information is, to the best of my knowledge and or submitting false information, including the possibility of fine			
Name and official title	Cecil R. Harris, Jr., County Ac	dministrator				
Signature _	Carl R.	Hamit				
Telephone number	(804) 365-6005					
Date signed	2/23/12					
Upon request of the permit works or identify appropria	tting authority, you must submit a te permitting requirements.	ny other information nec	essary to assess wastewater treatment practices at the treatment			

SEND COMPLETED FORMS TO:

Totopotomoy Wastewater Treatment Plant - VA0089915

SUPPLEMENTAL APPLICATION INFORMATION

PART D. EXPANDED EFFLUENT TESTING DATA

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Treatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

	MAXIMUM DAILY DISCHARGE					EDAILY	DISCH	ARGE			
Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples	ANALYTICAL METHOD	ML/ MDL	
), CYANIDE	, PHENO	LS, AND	HARDNE	SS.							
<20	ug/l	<184	g/day	<20	ug/l	<184	g/day	3	EPA 200.8	20 ug/l	
<20	ug/l	<184	g/day	<20	ug/l	<184	g/day	3	EPA 200.8	20 ug/l	
<1.0	ug/l	<9.2	g/day	<1.0	ug/l	<9.2	g/day	3	EPA 200.8	1.0 ug/l	
<0.1	ug/l	<0.92	g/day	<0.1	ug/l	<0.92	g/day	3	EPA 200.8	0.1 ug/l	
<5.0	ug/l	<46	g/day	<5.0	ug/l	<46	g/day	3	EPA 200.8	5.0 ug/l	
1.62	ug/l	14.9	g/day	1.38	ug/l	12.7	g/day	3	EPA 200.8	0.5 ug/l	
<1.0	ug/l	<9.2	g/day	<1.0	ug/l	<9.2	g/day	3	EPA 200.8	1.0 ug/l	
<0.2	ug/l	<1.8	g/day	<0.2	ug/l	<1.8	g/day	3	EPA 245.1	0.2 ug/l	
<2.0	ug/l	<18.4	g/day	1.5	ug/l	<18.4	g/day	3	EPA 200.8	0.5 ug/l	
<2.0	ug/l	<18.4	g/day	<2.0	ug/l	<18.4	g/day	3	EPA 200.8	2.0 ug/l	
<0.1	ug/l	<0.92	g/day	<0.1	ug/l	<0.92	g/day	3	EPA 200.8	0.1 ug/l	
<0.1	ug/l	<0.92	g/day	<0.1	ug/l	<0.92	g/day	3	EPA 200.8	0.1 ug/l	
37.5	ug/l	344.9	g/day	36.7	ug/l	337.6	g/day	3	EPA 200.8	1.0 ug/l	
<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	ASTM D 4282	10 ug/l	
<0.05	ug/l	<0.46	g/day	<0.05	ug/l	<0.46	g/day	3	EPA 420.4	0.05 ug/l	
79.3	mg/l	729.4	kg/d	76.8	mg/l	706.4	kg/d	3	SM2340B	0.2 mg/l	
o provide in	formation I	on other	metals re	quested b	y the peri	nit writer.	<u>-</u> -	· · · · · · · · · · · · · · · · · · ·			
	Conc. Conc	DISCI	DISCHARGE Conc. Units Mass Mass	Conc. Units Mass Units OCYANIDE, PHENOLS, AND HARDNE Q/day <20	Conc. Units Mass Units Conc.	Conc. Units Mass Units Conc. Units	CONC. Units Mass Units Conc. Units U	Conc. Units Mass Units Conc. Units Mass Units Units Conc. Units Mass Units Conc. Units Mass Units Conc. Units Mass Units Conc. Units Mass Units Conc. Un	Conc. Units Mass Units Conc. Units Mass Units Number of Samples	DISCHARGE Conc. Units Mass Units Conc. Units Mass Units Number of Samples ANALYTICAL METHOD	

Totopotomoy Wastewater Treatment Plant - VA0089915

Outfall number: 001									the United 5	States.)	
POLLUTANT	MAXIMUM DAILY DISCHARGE				Α'	VERAGE	EDAILY	DISCH	ARGE		
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples	ANALYTICAL METHOD	ML/ MDL
VOLATILE ORGANIC COMPOUNDS.	,	γ	·	·	T	Υ		,		·	***************************************
ACROLEIN	<50	ug/l	<460	g/day	<50	ug/l	<460	g/day	3	EPA 624	50 ug/l
ACRYLONITRILE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
BENZENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
BROMOFORM	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
CARBON TETRACHLORIDE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
CLOROBENZENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
CHLORODIBROMO-METHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
CHLOROETHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
2-CHLORO-ETHYLVINYL ETHER	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
CHLOROFORM	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
DICHLOROBROMO-METHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
1,1-DICHLOROETHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
1,2-DICHLOROETHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
TRANS-1,2-DICHLORO-ETHYLENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
1,1-DICHLOROETHYLENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
1,2-DICHLOROPROPANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
1,3-DICHLORO-PROPYLENE	<20	ug/l	<184	g/day	<20	ug/l	<184	g/day	3	EPA 624	20 ug/l
ETHYLBENZENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
METHYL BROMIDE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
METHYL CHLORIDE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
METHYLENE CHLORIDE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
1,1,2,2-TETRACHLORO-ETHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
TETRACHLORO-ETHYLENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
TOLUENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l

Totopotomoy Wastewater Treatment Plant - VA0089915

Outfall number: 001	(Comp	lete ond	ce for ea	ch outfall	dischar	ging efflu	uent to w	aters of	the United	States.)	
POLLUTANT	MAXIMUM DAILY DISCHARGE				A'	VERAGI	DAILY	DISCH	ARGE		
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples	ANALYTICAL METHOD	ML/ MDL
1,1,1-TRICHLOROETHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
1,1,2-TRICHLOROETHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
TRICHLORETHYLENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
VINYL CHLORIDE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 624	10 ug/l
Use this space (or a separate sheet) to	provide in	formatio	n on othe	r volatile o	rganic co	mpounds	requeste	d by the p	permit writer.		
ACID-EXTRACTABLE COMPOUNDS	<u></u>										
P-CHLORO-M-CRESOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
2-CHLOROPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
2,4-DICHLOROPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
2,4-DIMETHYLPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
4,6-DINITRO-O-CRESOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
2,4-DINITROPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
2-NITROPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
4-NITROPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
PENTACHLOROPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
PHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
2,4,6-TRICHLOROPHENOL	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
Use this space (or a separate sheet) to	provide int	ormation	on other	acid-extra	ctable co	mpounds	requeste	d by the	permit writer.		
BASE-NEUTRAL COMPOUNDS.											
ACENAPHTHENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
ACENAPHTHYLENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
ANTHRACENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
BENZIDINE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
BENZO(A)ANTHRACENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
BENZO(A)PYRENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l

Totopotomoy Wastewater Treatment Plant - VA0089915

(Complete once for each outfall discharging effluent to waters of the United States.) Outfall number: 001 AVERAGE DAILY DISCHARGE POLLUTANT MAXIMUM DAILY DISCHARGE Conc. Units Units Conc. Units Mass Units Number **ANALYTICAL** ML/ MDL Mass **METHOD** of Samples 3,4 BENZO-FLUORANTHENE <10 ug/l **EPA 625** <10 <92 3 ug/l <92 g/day g/day 10 ug/l BENZO(GHI)PERYLENE <10 ug/l <92 g/day <10 ug/l <92 g/day 3 **EPA 625** 10 ug/l BENZO(K)FLUORANTHENE <10 <10 ug/l <92 g/day ug/l <92 g/day 3 EPA 625 10 ug/l BIS (2-CHLOROETHOXY) <10 <92 <10 3 **EPA 625** ug/l g/day ug/l <92 g/day 10 ug/l METHANE BIS (2-CHLOROETHYL)-ETHER ug/l <10 ug/l <92 g/day <10 <92 g/day 3 **EPA 625** 10 ug/l BIS (2-CHLOROISO-PROPYL) <10 ug/l <92 g/day <10 ug/l <92 3 EPA 625 g/day 10 ug/l ETHER BIS (2-ETHYLHEXYL) PHTHALATE ug/l <10 <92 <10 <92 3 **EPA 625** g/day ug/l g/day 10 ug/l 4-BROMOPHENYL PHENYL ETHER <10 <92 ug/l 3 **EPA 625** ug/l g/day <10 <92 g/day 10 ug/l BUTYL BENZYL PHTHALATE <92 ug/l <10 ug/l g/day <10 <92 g/day 3 **EPA 625** 10 ug/l 2-CHLORONAPHTHALENE <92 <10 <10 ug/l ug/l <92 3 **EPA 625** g/day g/day 10 ug/l 4-CHLORPHENYL PHENYL ETHER <92 <10 ug/l g/day <10 ug/l <92 g/day 3 **EPA 625** 10 ug/l CHRYSENE <92 <10 ug/l <10 <92 3 **EPA 625** g/day ug/l g/day 10 ug/l <92 DI-N-BUTYL PHTHALATE <10 <10 ug/l g/day ug/l <92 g/day 3 **EPA 625** 10 ug/l DI-N-OCTYL PHTHALATE <10 ug/l <92 g/day <10 ug/l <92 g/day 3 **EPA 625** 10 ug/l DIBENZO(A,H) ANTHRACENE <92 <10 ug/l g/day <10 ug/l <92 g/day 3 **EPA 625** 10 ug/l 1,2-DICHLOROBENZENE <92 <10 <10 ug/l g/day ug/l <92 g/day 3 **EPA 624** 10 ug/l 1.3-DICHLOROBENZENE <92 <10 ug/l g/day <10 ug/l <92 g/day 3 EPA 624 10 ug/l 1.4-DICHLOROBENZENE <10 ug/l <92 g/day <10 <92 3 EPA 624 ug/l g/day 10 ug/l 3.3-DICHLOROBENZIDINE <92 <10 ug/l g/day <10 ug/l <92 g/day 3 **EPA 625** 10 ua/l DIETHYL PHTHALATE <10 ug/l <92 g/day <10 ug/l <92 g/day 3 **EPA 625** 10 ug/l DIMETHYL PHTHALATE <10 ug/l <92 <10 g/day ug/l <92 g/day 3 **EPA 625** 10 ug/l 2.4-DINITROTOLUENE <92 <10 ug/l <10 <92 g/day ug/l g/day 3 EPA 625 10 ug/l 2,6-DINITROTOLUENE <10 ug/l <92 g/day <10 ug/l <92 g/day 3 **EPA 625** 10 ug/l 1.2-DIPHENYLHYDRAZINE <92 <10 ug/l g/day <10 <92 3 **EPA 625** ug/l g/day 10 ug/l

Form Approved 1/14/99 OMB Number 2040-0086

FACILITY NAME AND PERMIT NUMBER:

Totopotomoy Wastewater Treatment Plant - VA0089915

outfall number: 001	(Comp	iete ond	e for ead	on outrail	discharg	jing emit	ient to w	aters of	the United S	states.)	
POLLUTANT	٨		IM DAIL` IARGE	Y	A۱	/ERAGE	DAILY	DISCHA	ARGE		
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples	ANALYTICAL METHOD	ML/ MDL
UORANTHENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
UORENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
EXACHLOROBENZENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
EXACHLOROBUTADIENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
EXACHLOROCYCLO- ENTADIENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
EXACHLOROETHANE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
DENO(1,2,3-CD)PYRENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
OPHORONE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
APHTHALENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
TROBENZENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
NITROSODI-N-PROPYLAMINE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
NITROSODI- METHYLAMINE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
NITROSODI-PHENYLAMINE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
IENANTHRENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
RENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
2.4-TRICHLOROBENZENE	<10	ug/l	<92	g/day	<10	ug/l	<92	g/day	3	EPA 625	10 ug/l
e this space (or a separate sheet) to p	rovide inf	formation	on other	base-neu	tral compo	ounds red	quested b	y the peri	mit writer.		
a this space (or a spaceto ship	unida ist				<u> </u>			1			
e this space (or a separate sheet) to pose					,						

END OF PART D.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE

Totopotomoy Wastewater Treatment Plant - VA0089915

Form Approved 1/14/99 OMB Number 2040-0086

SUPPLEMENTAL APPLICATION INFORMATION

PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

complete.									
E.1. Required Tests. See Attachment 5 for Toxicity test data.									
Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.									
E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.									
		Test number:							
a. Test information.			`						
Test species & test method number									
Age at initiation of test									
Outfall number									
Dates sample collected									
Date test started									
Duration		·							
b. Give toxicity test methods follows	ed.								
Manual title									
Edition number and year of publication									
Page number(s)									
c. Give the sample collection metho	od(s) used. For multiple grab sample	es, indicate the number of grab sample	es used.						
24-Hour composite									
Grab									
d. Indicate where the sample was to	aken in relation to disinfection. (Chec	ck all that apply for each)							
Before disinfection									
After disinfection									
After dechlorination									

Form Approved 1/14/99 OMB Number 2040-0086 FACILITY NAME AND PERMIT NUMBER: Totopotomoy Wastewater Treatment Plant - VA0089915 Test number: Test number:___ Test number:_ e. Describe the point in the treatment process at which the sample was collected. Sample was collected: f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both. Chronic toxicity Acute toxicity g. Provide the type of test performed. Static Static-renewal Flow-through h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source. Laboratory water Receiving water i. Type of dilution water. It salt water, specify "natural" or type of artificial sea salts or brine used. Fresh water Salt water j. Give the percentage effluent used for all concentrations in the test series. k. Parameters measured during the test. (State whether parameter meets test method specifications) рΗ Salinity Temperature

Ammonia Dissolved oxygen I. Test Results. Acute: Percent survival in 100% % % effluent LC₅₀ 95% C.I. % % % Control percent survival % % % Other (describe) EPA Form 3510-2A (Rev. 1-99). Replaces EPA forms 7550-6 & 7550-22. Page 16 of 21

FACILITY NAME AND PERMIT NUMBE Totopotomoy Wastewater Treatment		Form Approved 1/14/99 OMB Number 2040-0086				
Chronic:						
NOEC	%	%	%			
IC ₂₅	%	%	%			
Control percent survival	%	%	%			
Other (describe)						
m. Quality Control/Quality Assuran	ce.					
Is reference toxicant data available?						
Was reference toxicant test within acceptable bounds?						
What date was reference toxicant test run (MM/DD/YYYY)?						
Other (describe)						
-	describe:					
E.4. Summary of Submitted Biomonito cause of toxicity, within the past fou summary of the results.	ring Test Information. If you have su r and one-half years, provide the dates	bmitted biomonitoring test informati the information was submitted to th	on, or information regarding the e permitting authority and a			
Date submitted:	(MM/DD/YYYY)					
Summary of results: (see instruction	ns)					
REFER TO THE APPLICAT	END OF PAR		ER PARTS OF FORM			

2A YOU MUST COMPLETE.

EPA Form 3510-2A (Rev. 1-99). Replaces EPA forms 7550-6 & 7550-22.

Totopotomoy Wastewater Treatment Plant - VA0089915

Not Applicable

Form Approved 1/14/99 OMB Number 2040-0086

SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

	reatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must uplete Part F.
GEI	NERAL INFORMATION:
F.1.	Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program?
	YesNo
F.2.	Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.
	a. Number of non-categorical SIUs.
	b. Number of CIUs.
SIG	NIFICANT INDUSTRIAL USER INFORMATION:
Supposed and	ply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 provide the information requested for each SIU.
	Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.
	Name:
	Mailing Address:
F.4.	Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.
F.5.	Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.
	Principal product(s):
	Raw material(s):
F.6.	Flow Rate.
	 Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.
	gpd (continuous orintermittent)
	 Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.
	gpd (continuous orintermittent)
F.7.	Pretreatment Standards. Indicate whether the SIU is subject to the following:
	a. Local limitsYesNo
	b. Categorical pretreatment standardsYesNo
	If subject to categorical pretreatment standards, which category and subcategory?

FACILITY NAME AND PERMIT NUMBER: Form Approved 1/14/99 OMB Number 2040-0086 Totopotomoy Wastewater Treatment Plant - VA0089915 F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? If yes, describe each episode. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE: F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ___No (go to F.12.) F.10. Waste Transport. Method by which RCRA waste is received (check all that apply): Truck ___Rail Dedicated Pipe F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units). EPA Hazardous Waste Number Amount Units CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER: F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities? Yes (complete F.13 through F.15.) Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site. F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years). F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary). F.15. Waste Treatment. a. Is this waste treated (or will it be treated) prior to entering the treatment works? ____Yes ____No If yes, describe the treatment (provide information about the removal efficiency): b. Is the discharge (or will the discharge be) continuous or intermittent? __Continuous Intermittent If intermittent, describe discharge schedule. END OF PART F. REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM

2A YOU MUST COMPLETE

Totopotomoy Wastewater Treatment Plant - VA0089915

Not Applicable

Form Approved 1/14/99 OMB Number 2040-0086

SUPPLEMENTAL APPLICATION INFORMATION

PART G. COMBINED SEWER SYSTEMS

If the treatment works has a combined sewer system, complete Part G.

- G.1. System Map. Provide a map indicating the following: (may be included with Basic Application Information)
 - a. All CSO discharge points.
 - b. Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).
 - c. Waters that support threatened and endangered species potentially affected by CSOs.
- **G.2.** System Diagram. Provide a diagram, either in the map provided in G.1. or on a separate drawing, of the combined sewer collection system that includes the following information:
 - a. Locations of major sewer trunk lines, both combined and separate sanitary.
 - b. Locations of points where separate sanitary sewers feed into the combined sewer system.
 - c. Locations of in-line and off-line storage structures.
 - d. Locations of flow-regulating devices.
 - e. Locations of pump stations.

cso o	UTFALLS:					
Comple	te questions G.3 throug	h G.6 once <u>for each CSO discharge point</u> .				
G.3. De	scription of Outfall.					
a.	Outfall number					
b.	Location				•	
		(City or town, if applicable)		(Zip Code)		
		(County)		(State)		
		(County)		(State)		
		(Latitude)		(Longitude)		
C.	Distance from shore (if a	applicable)	ft.			
d.	Depth below surface (if	applicable)	ft.			
e.	Which of the following w	vere monitored during the last year for this CS	0?			
	Rainfall	CSO pollutant concentrations Receiving water quality	CSO frequency	,		
f.	How many storm events	were monitored during the last year?				
G.4. CS	O Events.					
a.	Give the number of CSC	events in the last year.				
	events (_ actual or approx.)				
b.	Give the average duration	on per CSO event.				
	hours (_ actual or approx.)				

FACILITY NAME AND PERMIT NUMBER: Form Approved 1/14/99 OMB Number 2040-0086 Totopotomoy Wastewater Treatment Plant - VA0089915 c. Give the average volume per CSO event. ___ million gallons (____ actual or ____ approx.) d. Give the minimum rainfall that caused a CSO event in the last year. ___ inches of rainfall G.5. Description of Receiving Waters. a. Name of receiving water: ___ b. Name of watershed/river/stream system: United States Soil Conservation Service 14-digit watershed code (if known): c. Name of State Management/River Basin: United States Geological Survey 8-digit hydrologic cataloging unit code (if known): G.6. CSO Operations. Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard). END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM

2A YOU MUST COMPLETE.

Totopotomoy Wastewater Treatment Plant (TWWTP) VA0089915

Attachment 1

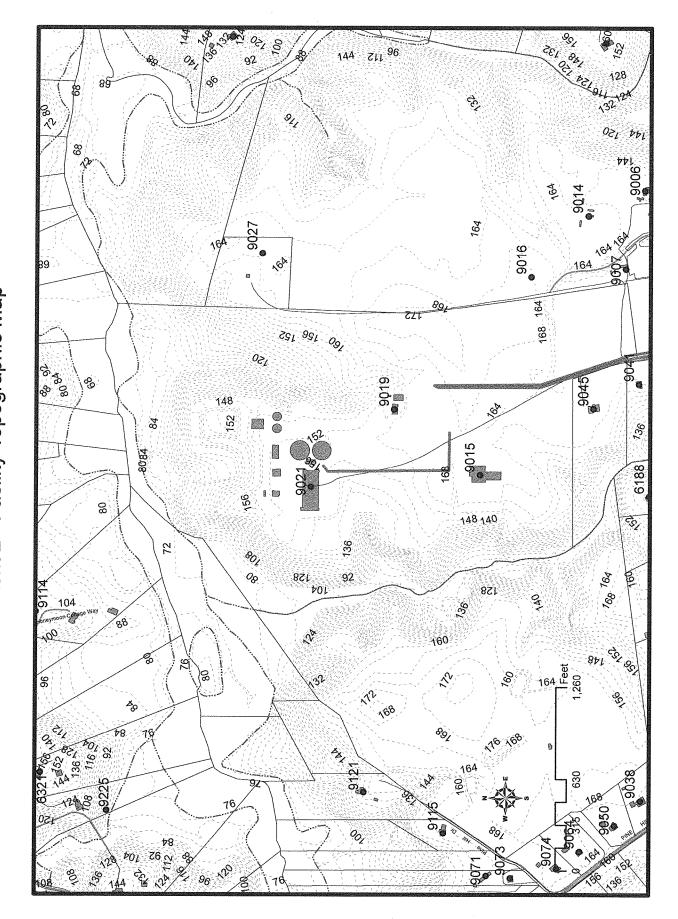
EPA Form 2A Part B.1

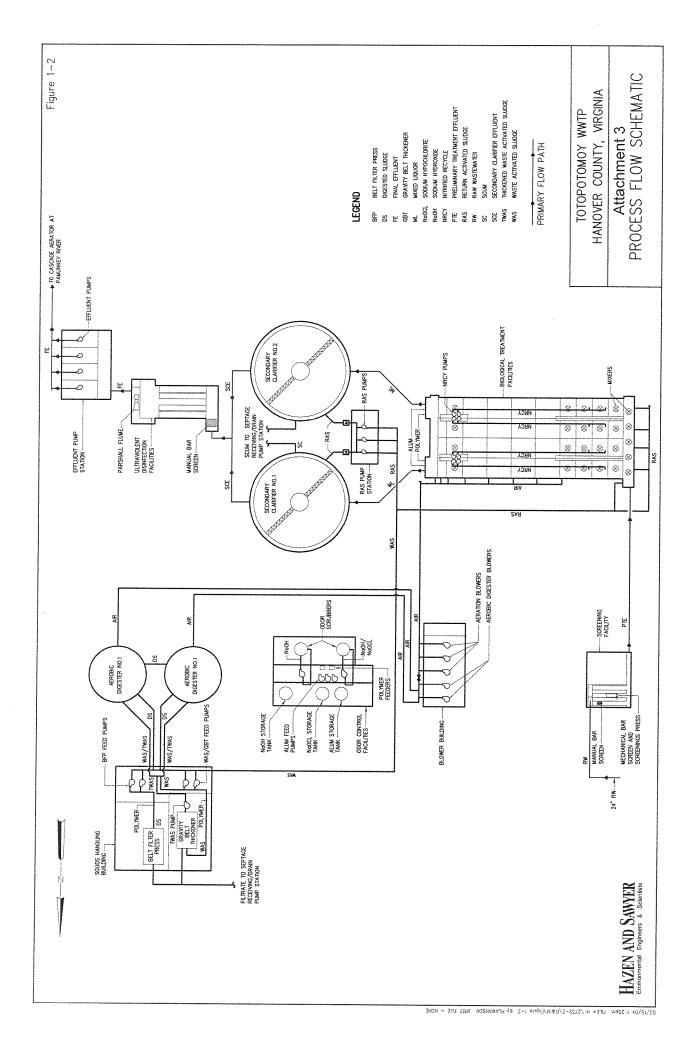
The daily volume of flow to the plant due to inflow and infiltration (I/I) varies and tends to be more severe after extended periods of wet weather. Hanover County is committed to reducing I/I induced flow and has aggressively addressed the problem by conducting numerous studies and rehabilitation projects to achieve this goal which have greatly reduced I/I.

Routine comprehensive CCTV inspection of the County collection system allows DPU to locate, identify and repair sanitary sewer problems that may contribute to the I/I problems from our annual maintenance budget. As needed, larger areas are studies and rehabilitated through CIP projects to renew the sanitary sewer infrastructure. All records of this and other work is maintained by Hanover County's Department of Public Utilities and available for review.

Totopotomoy Wastewater Treatment Plant VA0089915 Attachment 2 - Outfall Topographic Map ΔO TFeet 1,340

Totopotomoy Wastewater Treatment Plant VA0089915 Attachment 2 - Facility Topographic Map





Totopotomoy Wastewater Treatment Plant VA0089915

Attachment 4

Form 2A – B5. Scheduled Improvements and Scheduled Implementations - Facility Expansions

Construction plans for improvements to the Totopotomoy WWTP were submitted to the DEQ-PRO and CTCs dated August 26, 2011 have been issued to Hanover County – please reference these documents for project specifics..

EPA Form 2A Part E. Attachment 5 - Toxicity Testing Data

E.2. Individual Test Data

a Toot lafe		Test #1	Test #2	Test #3	Test #4	Test #5	Test #6
a. rest into	ormation						
	Test species & test method number	C. dubia EPA 1002.0	P. promelas EPA 1000.0	C. dubia EPA 1002.0	P. promelas EPA 1000.0	C. dubia EPA 1002.0	P. promelas EPA 1000.0
	Age at initiation of test	< 24 hours	24-48 hours	< 24 hours	24-48 hours	< 24 hours	24-48 hours
	Outfall number	001	001	001	001	001	001
	Dates sample collected	05/22-2			2/3/2010		16/2009
	Date test started	5/24/2011	5/24/2011		11/29/2010	10/12/2009	10/12/2009
	Duration	7 Days	7 days	7 Days	7 days	7 days	7 days
b. Give to:	xicity test methods followed						
	Manual title	EPA/600/4	I-90/027F	EPA/600/	4-90/027F	EPA/600/	4-90/027F
	Edition number and year of publication	4th editio			on, 1993		on, 1993
	Page number(s)	Unkn			nown		nown
c. Give the	e sample collection method(s) used. For mu						
	24-Hour composite Grab	Х	Х	X	X	Х	X
d Indicate	e where the sample was taken in relation to d	isinfection (Ch	ack all that an	oly for each)			L
u. mulcate	Before disinfection	isiniection. (Ch	eck all triat ap	oly for each)			
	After disinfection	X	Х	Х	Х	Х	X
	After dechlorination	,		,,			
	be the point in the treatment process at which	the sample wa	s collected.	· · · · · · · · · · · · · · · · · · ·		L	
	Sample was collected:	Effluent san	npling point		npling point	Effluent sar	npling point
	h test, include whether the test was intended	to assess chror	nic toxicity, act	ute toxicity, or	both.		
	Chronic toxicity	Х	Х	X	X	X	Х
	Acute toxicity						
g. Provide	the type of test performed.					<u></u>	
	Static						
	Static-renewal Flow-through	Х	X	X	Х	X	X
	of dilution water. If laboratory water, specity	type If receiving	na water spec	ify source			
n. oource	or didition water. It laboratory water, specify		hard synthetic Moderately hard synthetic Moderately hard synthetic freshw				
	Laboratory water	freshwater made w		freshwater ma		made with ASTM	
		deionize		Type I deio		wa	
	Receiving water						
i. Type of	dilution water. If salt water, specify "natural"	or type of artific	ial sea salts o	r brine used.			
	Fresh water	X	X	X	X	X	X
	Salt water						
j. Give the	percentage effluent used for all concentration			0.00/	0.00/	0.004	
j. Give the	percentage effluent used for all concentration	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
j. Give the	percentage effluent used for all concentration	3.0% 8.0%	3.0% 8.0%	8.0%	8.0%	8.0%	8.0%
j. Give the	percentage effluent used for all concentratio	3.0% 8.0% 11.0%	3.0% 8.0% 11.0%	8.0% 11.0%	8.0% 11.0%	8.0% 18.0%	8.0% 18.0%
j. Give the	percentage effluent used for all concentratio	3.0% 8.0% 11.0% 43.0%	3.0% 8.0% 11.0% 43.0%	8.0% 11.0% 43.0%	8.0% 11.0% 43.0%	8.0% 18.0% 43.0%	8.0% 18.0% 43.0%
		3.0% 8.0% 11.0% 43.0% 100%	3.0% 8.0% 11.0% 43.0% 100%	8.0% 11.0% 43.0% 100%	8.0% 11.0% 43.0% 100%	8.0% 18.0%	8.0% 18.0%
k. Parame	percentage effluent used for all concentration percentage effects and experience effects are concentration percentage effects and experience effects are concentration effects are concentration effects and experience effects are concentration effects are concentration effects and experience effects are concentration effects and experience effects are concentration effects and experience effects are concent	3.0% 8.0% 11.0% 43.0% 100%	3.0% 8.0% 11.0% 43.0% 100%	8.0% 11.0% 43.0% 100%	8.0% 11.0% 43.0% 100%	8.0% 18.0% 43.0%	8.0% 18.0% 43.0%
k. Parame	eters measured during the test. (State whethe pH Salinity	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te	3.0% 8.0% 11.0% 43.0% 100% eets test metho	8.0% 11.0% 43.0% 100% od specificatio	8.0% 11.0% 43.0% 100% Ins) Yes	8.0% 18.0% 43.0% 100%	8.0% 18.0% 43.0% 100%
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te	3.0% 8.0% 11.0% 43.0% 100% eets test methor Yes ested	8.0% 11.0% 43.0% 100% od specificatio Yes Not T	8.0% 11.0% 43.0% 100% ens) Yes ested Yes	8.0% 18.0% 43.0% 100% Yes Not T	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whether pH Salinity Temperature Ammonia	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 9ets test methor Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whether pH Salinity Temperature Ammonia Dissolved oxygen	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te	3.0% 8.0% 11.0% 43.0% 100% eets test methor Yes ested	8.0% 11.0% 43.0% 100% od specificatio Yes Not T	8.0% 11.0% 43.0% 100% ens) Yes ested Yes	8.0% 18.0% 43.0% 100% Yes Not T	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 9ets test methor Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute:	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 100% etest test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 100% etest test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent LC50	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 100% etest test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 100% etest test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent LC50 95% C.I.	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 100% etest test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whether pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent LC50 95% C.I. Control percent survival Other (describe) Chronic:	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes	3.0% 8.0% 11.0% 43.0% 100% etest test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes	8.0% 11.0% 43.0% 100% ens) Yes ested Yes ested	8.0% 18.0% 43.0% 100% Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes
k. Parame	eters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent LC50 95% C.I. Control percent survival Other (describe) Chronic: NOEC	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes Not Te	3.0% 8.0% 11.0% 43.0% 100% ets test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes Not T Yes	8.0% 11.0% 43.0% 100% ins) Yes ested Yes ested Yes	8.0% 18.0% 43.0% 100% Yes Not T Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes ested Yes 100%
k. Parame	sters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent LC50 95% C.I. Control percent survival Other (describe) Chronic: NOEC	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes Not Te Yes 100% 100% >100%	3.0% 8.0% 11.0% 43.0% 100% ets test methor Yes ested Yes ested Yes 	8.0% 11.0% 43.0% 100% od specification Yes Not T Yes Not T Yes	8.0% 11.0% 43.0% 100% Ins) Yes ested Yes ested Yes 	8.0% 18.0% 43.0% 100% Yes Not T Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes ested Yes
k. Parame	sters measured during the test. (State whethe pH Salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent LC50 95% C.I. Control percent survival Other (describe) Chronic: NOEC IC25 Control percent survival	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes Not Te	3.0% 8.0% 11.0% 43.0% 100% ets test methor Yes ested Yes ested Yes	8.0% 11.0% 43.0% 100% od specificatio Yes Not T Yes Not T Yes	8.0% 11.0% 43.0% 100% ins) Yes ested Yes ested Yes	8.0% 18.0% 43.0% 100% Yes Not T Yes Not T Yes	8.0% 18.0% 43.0% 100% Yes ested Yes ested Yes 100%
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k. Parame	eters measured during the test. (State whether ph salinity Temperature Ammonia Dissolved oxygen sults Acute: Percent survival in 100% effluent LC50 95% C.I. Control percent survival Other (describe) Chronic: NOEC IC25 Control percent survival Other (describe) Control percent survival Other (describe) IC25 Control percent survival Other (describe) IC25 Control percent survival Other (describe) UC97 Control percent survival Other (describe) Control/Quality Assurance Is reference toxicant data available? Was reference toxicant test within acceptable bounds?	3.0% 8.0% 11.0% 43.0% 100% r parameter me Yes Not Te Yes Not Te Yes 100% 100% 100% 100% Yes	3.0% 8.0% 11.0% 43.0% 100% etes test methor Yes ested Yes ested Yes 100% >100% >100% >100% >100% >100% 98%	8.0% 11.0% 43.0% 100% bd specification Yes Not T Yes Not T Yes 100% >100% >100% >100% >100% Yes	8.0% 11.0% 43.0% 100% 100% Yes ested Yes ested Yes 100% > 100% > 100% > 100% > 100% > 100% > 100% > 100%	8.0% 18.0% 43.0% 100% Yes Not T Yes Not T Yes 100% 100% 100% 100% Yes Yes	8.0% 18.0% 43.0% 43.0% 100% Yes ested Yes ested Yes 43.0% 100% Yes 43.0% Yes

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915 VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM

SCREENING INFORMATION

This application is divided into sections. Sections A pertain to all applicants. The applicability of Sections B, C and D depend on your facility's sewage sludge use or disposal practices. The information provided on this page will help you determine which sections to fill out.

	•	h sections to fill out.						
1.	All app	olicants must complete Section A (General Information).						
2.	Will th	Will this facility generate sewage sludge? X Yes _No						
	Will th	is facility derive a material from sewage sludge?Yes X_No						
		answered Yes to either, complete Section B (Generation Of Sewage Sludge Or Preparation Of A Material d From Sewage Sludge).						
3.	Will th	is facility apply sewage sludge to the land?Yes X_No						
	Will se	Will sewage sludge from this facility be applied to the land? _Yes X_No						
	If you answered No to both questions above, skip Section C.							
	If you a	inswered Yes to either, answer the following three questions:						
	a.	Will the sewage sludge from this facility meet the ceiling concentrations, pollutant concentrations, Class A pathogen reduction requirements and one of the vector attraction reduction requirements 1-8, as identified in the instructions? YesNo						
	b.	Will sewage sludge from this facility be placed in a bag or other container for sale or give-away for application to the land?YesNo						
	c.	Will sewage sludge from this facility be sent to another facility for treatment or blending?YesNo						
	If you a	nswered No to all three, complete Section C (Land Application Of Bulk Sewage Sludge).						
	If you a	nswered Yes to a, b or c, skip Section C.						
١.	Do you	own or operate a surface disposal site?Yes X_No						
	If Yes,	complete Section D (Surface Disposal).						

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915 SECTION A. GENERAL INFORMATION

All applicants must complete this section.

a.	lity Information.
a.	Facility name: Totopotomoy Wastewater Treatment Plant
b.	Contact person: David Van Gelder
	Title: Chief of Operations & Maintenance
	Phone: () (804) 365-6235
c.	Mailing address:
	Street or P.O. Box: P.O. Box 470
	City or Town: Hanover State: Virginia Zip: 23069
d.	Facility location:
	Street or Route #: 9015 Pole Green Park Lane
	County: Hanover County
	City or Town: Mechanicsville State: Virginia Zip: 23116
e.	Is this facility a Class I sludge management facility?Yes X_No
f.	Facility design flow rate: 7.0 MGD mgd
g.	Total population served: Approximately 25,000
h.	Indicate the type of facility:
	X Publicly owned treatment works (POTW)
	Privately owned treatment works
	Federally owned treatment works
	Blending or treatment operation
	Surface disposal site
	Other (describe):
	licant Information. If the applicant is different from the above, provide the following:
a.	Applicant name: Same As Above
b.	Mailing address:
b.	Mailing address:
	Mailing address: Street or P.O. Box: City or Town: State: Zip:
b. с.	Mailing address: Street or P.O. Box: City or Town: Contact person:
	Mailing address: Street or P.O. Box: City or Town: State: Zip:
	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: ()
	Mailing address: Street or P.O. Box: City or Town: Contact person:
c.	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: ()
c.	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner X operator Should correspondence regarding this permit be directed to the facility or the applicant? (Check one)
c.	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner X operator
c. d. e.	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility X applicant
c. d. e.	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility X applicant nit Information.
c. d. e. Perm	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility A applicant nit Information. Facility's VPDES permit number (if applicable): VA0089915, VAN030051
c. d. e.	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility A applicant nit Information. Facility's VPDES permit number (if applicable): VA0089915, VAN030051 List on this form or an attachment, all other federal, state or local permits or construction approvals
c. d. e. Perm	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility X applicant it Information. Facility's VPDES permit number (if applicable): VA0089915, VAN030051 List on this form or an attachment, all other federal, state or local permits or construction approvals received or applied for that regulate this facility's sewage sludge management practices:
c. d. e. Perm	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility X applicant applicant None Mone Mone Type of Permit: None State: Zip: Zip: Zip:
c. d. e. Perm	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility Title: None State: Zip: Zip: Contact person: State: Zip: Zip: Zip:
c. d. e. Perm	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility A applicant Information. Facility's VPDES permit number (if applicable): List on this form or an attachment, all other federal, state or local permits or construction approvals received or applied for that regulate this facility's sewage sludge management practices: Permit Number: Type of Permit: None
c. d. e. Perma. b.	Mailing address: Street or P.O. Box: City or Town: Contact person: Title: Phone: () Is the applicant the owner or operator (or both) of this facility? X owner Should correspondence regarding this permit be directed to the facility or the applicant? (Check one) facility Title: None State: Zip: Zip: Contact person: State: Zip: Zip: Zip:

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915
5. Topographic Map. Provide a topographic map or maps (or other appropriate maps if a topographic map is

unavailable) that shows the following information. Maps should include the area one mile beyond all property boundaries of the facility:

See Attachment 1

a. Location of all sewage sludge management facilities, including locations where sewage sludge is generated, stored, treated, or disposed.

b. Location of all wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the property boundaries.

6. Line Drawing. Provide a line drawing and/or a narrative description that identifies all sewage sludge processes that will be employed during the term of the permit including all processes used for collecting, dewatering, storing, or treating sewage sludge, the destination(s) of all liquids and solids leaving each unit, and all methods used for pathogen reduction and vector attraction reduction. See Attached Process Narrative

Name: See At Mailing address:	ached Contractor In			SAME A COLO - SAME
Street or P.O. Box:				
City or Town:		State:	Zip:	******
Phone: ()				
Contractor's Federal, State	or Local Permit Number(s) a	pplicable to	this facility's sewa	age sludge:

8. Pollutant Concentrations. Using the table below or a separate attachment, provide sewage sludge monitoring data for the pollutants which limits in sewage sludge have been established in 9 VAC 25-31-10 et seq. for this facility's expected use or disposal practices. All data must be based on three or more samples taken at least one month apart and must be no more than four and one-half years old.

Not Applicable

POLLUTANT	CONCENTRATION (mg/kg dry weight)	SAMPLE DATE	ANALYTICAL METHOD	DETECTION LEVEL FOR ANALYSIS
Arsenic				
Cadmium				**************************************
Chromium				
Copper				
Lead				
Mercury				
Molybdenum				
Nickel				
Selenium				
Zinc				

9.	Certification. Read and submit the following certification statement with this application. Refer to the instruction to determine who is an officer for purposes of this certification. Indicate which parts of the application you have completed and are submitting:					
	X Section A (General Information)					
	X Section B (Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge)					
	Section C (Land Application of Bulk Sewage Sludge)					

Section D (Surface Disposal)

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official tit	le <u>Cec</u>	il R.	Harris,	Jr.,	County	Administrator
Signature	eifo	[.]	dani)	Date	Signed	2/23/12
Telephone number	(804)	365-6	5005/			

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915 SECTION B. GENERATION OF SEWAGE SLUDGE OR PREPARATION OF A MATERIAL DERIVED FROM SEWAGE SLUDGE

Complete this section if your facility generates sewage sludge or derives a material from sewage sludge

	ount Received from Off Site. If your facility receives sewage sludge from another facility for treatment, use of
	osal, provide the following information for each facility from which sewage sludge is received. If you receive
	ge sludge from more than one facility, attach additional pages as necessary. Facility name:None
a. b.	
υ.	Contact Person:
	Title:
c.	Phone () Mailing address:
C.	
	Street or P.O. Box: City or Town: State: Zip:
d.	Facility Address:
u.	(not P O Roy)
e.	(not P.O. Box) dry metric tons per 365-day period received from this facility: dry metric to
f.	Describe, on this form or on another sheet of paper, any treatment processes known to occur at the off-s
1.	facility, including blending activities and treatment to reduce pathogens or vector attraction characteris
Treat	ment Provided at Your Facility. Which class of pathogen reduction is achieved for the sewage sludge at your facility?
	Class AClass B X Neither or unknown
b.	Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce pathogens in sewage sludge: See Attached Process Narrative
c.	Which vector attraction reduction option is met for the sewage sludge at your facility?
٠.	Option 1 (Minimum 38 percent reduction in volatile solids)
	Option 2 (Anaerobic process, with bench-scale demonstration)
	Option 3 (Aerobic process, with bench-scale demonstration)
	Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
	Option 5 (Aerobic processes plus raised temperature)
	Option 6 (Raise pH to 12 and retain at 11.5)
	Option 7 (75 percent solids with no unstabilized solids)
	Option 8 (90 percent solids with unstabilized solids)
	X None or unknown
d.	Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce
	vector attraction properties of sewage sludge: See Attached Process Narrative
e.	Describe, on this form or another sheet of paper, any other sewage sludge treatment activities, including
C.	blending, not identified in a - d above: Not Applicable
Prena	ration of Sewage Sludge Meeting Ceiling and Pollutant Concentrations, Class A Pathogen Requirements a
One	CV + Au + C D + C O + 10 (DO O) + 1
(If seu	of vector Attraction Reduction Options i-8 (EQ Sludge). Not Applicable age sludge from your facility does not meet all of these criteria, skip Question 4.)
a.	Total dry metric tons per 365-day period of sewage sludge subject to this section that is applied to the la
	dry metric tons

FACI	LITY N	AME: Totopotomoy wastewater Treatment Plant VPDES PERMIT NUMBER: VA00899 VPDES PERMIT NUMBER: VA00899 VPDES PERMIT NUMBER: VA00899
5.	Sale o	or Give-Away in a Bag or Other Container for Application to the Land. Not Applicable
	(Comp	lete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this
	questio a.	n if sewage sludge is covered in Question 4.) Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility
	и.	for sale or give-away for application to the land: dry metric tons
	b.	Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.
6.	Shipn	nent Off Site for Treatment or Blending.
	(Comp not app Questic	lete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does by to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in ons 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)
	a. b.	Receiving facility name: Facility contact:
	0.	Title:
		Phone: ()
	c.	Mailing address:
		Street or P.O. Box:
	د	Street or P.O. Box: City or Town: Total dry metric tons per 365-day period of sewage sludge provided to receiving facility: dry
	d.	metric tons
	e.	List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:
		Permit Number: Type of Permit:
	f.	Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility?YesNo Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?Class AClass BNeither or unknown Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge:
	g.	Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the
		sewage sludge?YesNo
		Which vector attraction reduction option is met for the sewage sludge at the receiving facility? Option 1 (Minimum 38 percent reduction in volatile solids)
		Option 2 (Anaerobic process, with bench-scale demonstration)
		Option 3 (Aerobic process, with bench-scale demonstration)
		Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
		Option 5 (Aerobic processes plus raised temperature)
		Option 6 (Raise pH to 12 and retain at 11.5)
		Option 7 (75 percent solids with no unstabilized solids)
		Option 8 (90 percent solids with unstabilized solids) None unknown
		Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to
		reduce vector attraction properties of sewage sludge:
	h.	Does the receiving facility provide any additional treatment or blending not identified in f or g above? YesNo
		If yes, describe, on this form or another sheet of paper, the treatment processes not identified in f or g above:
	i.	If you answered yes to f., g or h above, attach a copy of any information you provide to the receiving facility

	IY NAN	ME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA008991 to comply with the "notice and necessary information" requirement of 9 VAC 25-31-530.G.					
j		Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give-away for application to the land?YesNo					
k		If yes, provide a copy of all labels or notices that accompany the product being sold or given away. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? Yes No. If no, provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.					
		Show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported.					
ĭ	and An	plication of Bulk Sewage Sludge. Not Applicable					
	Land Application of Bulk Sewage Sludge. Not Applicable (Complete Question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in Questions 4, 5 or 6;						
		Question 7.b, c & d only if you are responsible for land application of sewage sludge.)					
a		Total dry metric tons per 365-day period of sewage sludge applied to all land application sites:dry metric tons					
b		Do you identify all land application sites in Section C of this application?YesNo If no, submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).					
c.		Are any land application sites located in States other than Virginia?YesNo					
		If yes, describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification.					
d.	,	Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV).					
		Disposal. Not Applicable					
a.		Question 8 if sewage sludge from your facility is placed on a surface disposal site.) Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites: dry metric tons					
b.	. 1	Do you own or operate all surface disposal sites to which you send sewage sludge for disposal? YesNo					
	5	If no, answer questions c - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.					
C.		Site name or number:					
d.	1	Contact person: Fitle: Phone: ()					
e.	1	Contact is:Site OwnerSite operator Mailing address.					
f.		Street or P.O. Box:State:Zip: City or Town:State:Zip: Fotal dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal ite:dry metric tons					
g.	I	List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the urface disposal site:					
		Permit Number: Type of Permit:					

FACI	a.	AME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915 Total dry metric tons per 365-day period of sewage sludge from your facility fired in a sewage sludge
	b.	incinerator: dry metric tons Do you own or operate all sewage sludge incinerators in which sewage sludge from your facility is fired?
		YesNo If no, answer questions c - g for each sewage sludge incinerator that you do not own or operate. If you send sewage sludge to more than one sewage sludge incinerator, attach additional pages as necessary.
	c.	Incinerator name or number:
	d.	Contact person:
		Title:
		Phone: () Contact is:Incinerator OwnerIncinerator Operator
		Contact is:Incinerator OwnerIncinerator Operator
	e.	Mailing address.
		Street or P.O. Box: City or Town: State:
		City or Town: State: Zip:
	f.	Total dry metric tons per 365-day period of sewage sludge from your facility fired in this sewage sludge
		incinerator: dry metric tons
	g.	List on this form or an attachment the numbers of all other federal, state or local permits that regulate the
		firing of sewage sludge at this incinerator:
		Permit Number: Type of Permit:
1.0	D'	
10.		sal in a Municipal Solid Waste Landfill.
	(Comp	lete Question 10 if sewage sludge from your facility is placed on a municipal solid waste landfill. Provide the following information for unicipal solid waste landfill on which sewage sludge from your facility is placed. If sewage sludge is placed on more than one
		pal solid waste landfill, attach additional pages as necessary.)
	a.	Landfill name: Virginia Waste Services (Shoosmith Bros. Landfill)
	b.	Contact person: Bruce Coble
	0.	Title: Manager, Landfill Operations
		Phone: () (804) 748-5823
		Contact is:Landfill Owner X Landfill Operator
	c.	Mailing address.
	••	Street or P.O. Box: 11800 Lewis Road
		City or Town: Chester State: VA Zip: 23831
	d.	Landfill location.
		Street or Route #: Same As Above
		County:
		City or Town: State: Zip: Zip:
	e.	Total dry metric tons per 365-day period of sewage sludge placed in this municipal solid waste landfill:
	•	324 dry metric tons dry metric tons
	f.	List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the
		operation of this municipal solid waste landfill:
		Permit Number: Type of Permit:
		VADEQ #587 Solid Waste Permit
	g.	Does sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9
	۵.	VAC 20-80-10 et seq., concerning the quality of materials disposed in a municipal solid waste landfill?
		X_Yes_No
	h.	Does the municipal solid waste landfill comply with all applicable criteria set forth in the Virginia Solid
	***	Waste Management Regulation, 9 VAC 20-80-10 et seq.? X Yes No
	i.	Will the vehicle bed or other container used to transport sewage sludge to the municipal solid waste landfill
		be watertight and covered? X Yes No
		Show the haul route(s) on a location map or briefly describe the route below and indicate the days of the
		week and time of the day sewage sludge will be transported. See Attachment 3
		and any serial s

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915

SECTION C. LAND APPLICATION OF BULK SEWAGE SLUDGE Not Applicable

Complete this section for sewage sludge that is land applied unless any of the following conditions apply:

The sewage sludge meets the Table 1 ceiling concentrations, the Table 3 pollutant concentrations, Class A pathogen requirements and one of the vector attraction reduction options 1-8 (fill out B.4 instead) (EQ Sludge); or

The sewage sludge is sold or given away in a bag or other container for application to the land (fill out B.5 instead); or

You provide the sewage sludge to another facility for treatment or blending (fill out B.6 instead).

Complete Section C for every site on which the sewage sludge that you reported in B.7 is land applied.

1.	Iden	tification o	of Land Application S	ite.						
	a.	Site n	ame or number:							
	b.	Site lo	ocation (Complete i ar	nd ii)						
		i.	Street or Route#: _			ATTACA				
			County:							
			City or Town:		State:	Zip:				
		ii.	Latitude:	Lo	ngitude:	•				
			Method of latitude							
			USGS ma	np Fi	led survey	Other				
	c.		graphic map. Provide ilable) that shows the	a topographic ma	p (or other appr	ropriate map if a top	ographic map is			
2.	Own	er Informa	ition.							
	a.	Are yo	ou the owner of this la	and application sit	e?Yes 1	No				
	b.	If no, Name	provide the following:	information abou	t the owner:		_			
		Street	or P.O. Box:							
		City 0	r Town:		State:	Zip:				
		Phone	:()							
3.	Appl	ier Inform	ation:							
	a.	Are you the person who applies, or who is responsible for application of, sewage sludge to this land application site?YesNo								
	b.	If no,	provide the following	information for th						
		Street	or P.O. Box:							
		City or	r Town:		State:	Zip:	***************************************			
		Phone	:()							
	c.	List, o	Phone: ()							
			Number:	• •	ype of Permit:					
			**************************************				-			
4.	Cito T	Vma Idaa	+:6, th a town - 51 1 -		.10	11	•			
7.	SHEI	ype. Iden	tify the type of land a	ppiication site fro	m among the fo	ollowing:				
	/\ D_11	gricuiturai blic conto	land ct site	Reciamation site		Forest				
	ru	one coma	ct site	_Other. Describe						
5.	Vecto	r Attractio	on Reduction.							
	Are a	'esN	lo If yes, answer a an	nd b.		dge is applied to the	e land application site?			
	a.	Indicat	e which vector attract	ion reduction opti	on is met:					
		Ор	tion 9 (Injection belov	w land surface)						
		Ор	tion 10 (Incorporation	n into soil within t	6 hours)					
	b.	Descri	oe, on this form or on	another sheet of p	paper, any treatr	ment processes used	at the land application site			
		to redu	ce the vector attractio	n properties of sev	wage sludge:	-	• •			
				1-7/1000		P. H.				

				nt Plant	VPDES PERMIT NUMBER: VA0089	915
6.		llative Loadings and Remaining A				
		lete Question 6 only if the sewage sludge (s) - see instructions.)	applied to this site since	e July 20, 1993 is	s subject to the cumulative pollutant loading rates	
	a.		nermitting authori	ity in the state	e where the sewage sludge subject to the	
	a.				subject to the CPLRs has been applied to	
		this site since July 20, 1993?		ewage studge	subject to the Ci Eks has been applied to	
		If no, sewage sludge subject to		t he applied to	o this site	
		If yes, provide the following in		t oc applied to	o unis site.	
		Permitting authority:				
		Contact person:				
		Contact person:				
	b.	Rased upon this inquiry has be	lk cawaga cludga g	uhiest to the		Λ
	0.	1993?YesNo If no, sk	in the rest of Ovest	ion 6. If yes	answer questions of a	J,
	0					
	c. d.	Site size, in hectares:			yours that is sending or has sent sewage	
	u.				more than one such facility sends sewage	
		sludge to this site, attach additi			more than one such facility sends sewage	
		Facility contact:	·	<u></u>		
		Facility contact:				
		Title:				
		Phone: () Mailing address.				
		Street or P.O. Box:City or Town:	Ctata	7:		
					re, for each of the following pollutants:	
	e.		ulative loading		e, for each of the following pollutants:	
		Arsenic	diative loading	Anoment	. remaining	
		Cadmium				
		Copper				
		Lead				
		Mercury				
		Nickel				
		Selenium			Marie Control of the	
		Zinc	TTT COLOR CO		THE STATE OF THE S	
		ZIIIC		-		
these q	uestions ma	ns 7-12 below only if you apply sewage slu ny be prepared as attachments to this form) who is responsible for the operation.	dge, or you are respons 1. Skip the following qu	sible for land ap uestions if you co	oplication of sewage sludge. Information required by ontract land application to someone else (as indicated	ı
7.	Sludge param		elow or a separate	attachment, p	provide at least one analysis for each	
		DCDa (ma/ka)				
		PCBs (mg/kg)				
		pH (S. U.) Percent Solids (%)				
		. ,	************			
		Ammonium Nitrogen (mg/kg)				
		Nitrate Nitrogen (mg/kg)				
		Total Kjeldahl Nitrogen (mg/kg				
		Total Phosphorus (mg/kg)				
		Total Potassium (mg/kg)				
		Alkalinity as CaCO ₃ * (mg/kg)				
		* Lime treated sludge (1)% or more lime by	dry weight)	should be analyzed for percent CaCO ₃ .	

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915

8. Storage Requirements.

Existing and proposed sludge storage facilities must provide an estimated annual sludge balance on a monthly basis incorporating such factors as storage capacity, sludge production and land application schedule. Include pertinent calculations justifying storage requirements.

Proposed sludge storage facilities must also provide the following information:

- A sludge storage site layout on a 7.5 minute topographic quadrangle or other appropriate scaled map to show the following topographic features of the surrounding landscape to a distance of 0.25 mile. Clearly mark the property line.
 - 1) Water wells, abandoned or operating
 - 2) Surface waters
 - 3) Springs
 - 4) Public water supply(s)
 - 5) Sinkholes
 - 6) Underground and/or surface mines
 - 7) Mine pool (or other) surface water discharge points
 - 8) Mining spoil piles and mine dumps
 - 9) Quarry(s)
 - 10) Sand and gravel pits
 - 11) Gas and oil wells
 - 12) Diversion ditch(s)
 - 13) Agricultural drainage ditch(s)
 - 14) Occupied dwellings, including industrial and commercial establishments
 - 15) Landfills or dumps
 - 16) Other unlined impoundments
 - 17) Septic tanks and drainfields
 - 18) Injection wells
 - 19) Rock outcrops
- b. A topographic map of sufficient detail to clearly show the following information:
 - 1) Maximum and minimum percent slopes
 - 2) Depressions on the site that may collect water
 - 3) Drainageways that may attribute to rainfall run-on to or runoff from this site
 - 4) Portions of the site (if any) which are located with the 100-year floodplain and how the storage facility will be protected from flooding
- c. Data and specifications for the storage facility lining material.
- d. Plan and cross-sectional views of the storage facility.
- e. Depth from the bottom of the storage facility to the seasonal high water table and separation distance to the permanent water table.
- 9. Land Area Requirements. Provide calculations justifying the land area requirements for land application of sewage sludge taking into consideration average soil productivity group, crop(s) to be grown and most limiting factor(s) of the sewage sludge, specifically Plant Available Nitrogen (PAN), Calcium Carbonate Equivalence (CCE), and metal loadings (CPLR sewage sludge only), where applicable. Relate PAN, CCE, and metal loadings to demonstrate the most limiting factor for land application.
- 10. Landowner Agreement Forms. Provide a properly completed Sewage Sludge Application Agreement Form (attached) for each landowner if sewage sludge is to be applied onto land not owned by the applicant.
- 11. Ground Water Monitoring.

Are any ground water monitoring data available for this land application site? ___Yes ___No If yes, submit the ground water monitoring data with this permit application. Also submit a written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

12. Land Application Site Information.

(Complete Items a-d for sites receiving infrequent application - land application of sewage sludge up to the agronomic rate at a frequency of once in a 3 year period; complete Items a-h for sites receiving frequent application - land application of sewage sludge in excess of 70% the agronomic rate at a frequency greater than once in a 3 year period)

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915

- a. Provide a general location map for each county which clearly indicates the location of all the land application sites.
- b. For each land application site provide a site plan of sufficient detail to clearly show the concerned landscape features and associated buffer zones (See instructions). Provide a legend for each landscape feature and the net acreage for each field taking into account the proposed buffer zones.
- In order to ensure that land application of bulk sewage sludge will not impact federally listed threatened or endangered species or federally designated critical habitat, the applicant must notify the field office of the U. S. Department of the Interior, Fish and Wildlife Service (FWS), by a letter, the proposed land application activities with the identification of the land application sites. The address and phone number of FWS are provided below.

U. S. Fish and Wildlife Service Ecological Services 6669 Short Lane Gloucester, VA 23061 TEL: (804) 693-6694

Provide a copy of the notification letter with this application form.

- d. Provide a soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.)
 - Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions shall include as a minimum the following information.
 - 1) Soil symbol
 - 2) Soil series, textural phase and slope range
 - 3) Depth to seasonal high water table
 - 4) Depth to bedrock
 - 5) Estimated soil productivity group (for the proposed crop rotation)

Item e - h are required for sites receiving frequent application of sewage sludge

- e. In order to verify the information provided in item d, characterize the soil at each land application site.

 Representative soil borings or test pits to a depth of five feet or to bedrock if shallower, are to be coordinated for the typifying pedon of each soil series (soil type). Soil descriptions shall include as a minimum the following information:
 - 1). Soil symbol
 - 2). Soil series, textural phase and slope range
 - 3). Depth to seasonal high water table
 - 4). Depth to bedrock
 - 5). Estimated soil productivity group (for the proposed crop rotation)

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915 Collect and analyze soil samples from each field, weighted to best represent each of the soil borings performed for Item e. Using the table below or a separate attachment, provide at least one analysis per sample for each of the following parameters. Soil Organic Matter (%) Soil pH (std. units) Cation Exchange Capacity (meq/100g) Total Nitrogen (ppm) Organic Nitrogen (ppm) Ammonia Nitrogen (ppm) Nitrate Nitrogen (ppm) Available Phosphorus (ppm) Exchangeable Potassium (mg/100g) Exchangeable Sodium (mg/100g) Exchangeable Calcium (mg/100g) Exchangeable Magnesium (mg/100g) Arsenic (ppm) Cadmium (ppm) Copper (ppm) Lead (ppm) Mercury (ppm) Molybdenum (ppm) Nickel (ppm) Selenium (ppm) Zinc (ppm)

- g. Relate the crop nutrient needs to anticipated yields, soil productivity rating and the various fertilizer or nutrient sources from sludge and chemical fertilizers. Describe any specialized agronomic management practices which may be required as a result of high soil pH. If the sludge is expected to possess an unusually high CCE or other unusual properties, provide a description of any plant tissue testing, supplemental fertilization or intensive agronomic management practices which may be necessary.
- h. Using a narrative format and referencing any related charts, describe the proposed cropping system. Show how the crop rotation and management will be coordinated with the design of the land application system. Include any supplemental fertilization program, soil testing and the coordination of tillage practices, planting and harvesting schedules and timing of land application.

Manganese (ppm)
Particle Size Analysis or
USDA Textural Estimate (%)

FACILITY NAME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915 SEWAGE SLUDGE APPLICATION AGREEMENT This sewage sludge application agreement is made on this date , referred to here as "landowner", and , referred to here as the "Permittee". Landowner is the owner of agricultural land shown on the map attached as Exhibit A and designated there as ("landowner's land"). Permittee agrees to apply and landowner agrees to comply with certain permit requirements following application of sewage sludge on landowner's land in amounts and in a manner authorized by VPDES permit number which is held by the Permittee. Landowner acknowledges that the appropriate application of sewage sludge will be beneficial in providing fertilizer and soil conditioning to the property. Moreover, landowner acknowledges having been expressly advised that, in order to protect public health, the following site restrictions must be adhered to when sewage sludge receives Class B treatment for pathogen reduction: 1. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge; Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application 2. of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil; 3. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil; 4. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge; 5. Animals shall not be grazed on the land for 30 days after application of sewage sludge; 6. Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the State Water Control Board; 7. Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge; 8. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge. 9. Tobacco, because it has been shown to accumulate cadmium, should not be grown on landowner's land for three years following the application of sewage sludge borne cadmium equal to or exceeding 0.5 kilograms/hectare (0.45 pounds/acre). Permittee agrees to notify landowner or landowner's designee of the proposed schedule for sewage sludge application and specifically prior to any particular application to landowner's land. This agreement may be terminated by either party upon written notice to the address specified below.

Permittee:

Mailing Address

Signature

Mailing Address

Signature

Landowner:

SECTION D. SURFACE DISPOSAL

Not Applicable

Complete this section only if you own or operate a surface disposal site. Provide the information for each active sewage sludge unit.

a.	Linit name as numbers
1	Unit name or number:
b.	Unit location i. Street or Route#:
	City or Town.
	County: State: Zip: ii. Latitude: Longitude:
	Method of latitude/longitude determination
c.	USGS map Filed survey Other Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.
d.	Total dry metric tons of sewage sludge placed on the active sewage sludge unit per 365-day period: dry metric tons.
e.	Total dry metric tons of sewage sludge placed on the active sewage sludge unit over the life of the unit:
f.	Does the active sewage sludge unit have a liner with a minimum hydraulic conductivity of 1 x 10 ⁻⁷ cm/sec?YesNo If yes, describe the liner or attach a description.
g.	Does the active sewage sludge unit have a leachate collection system?YesNo If yes, describe the leachate collection system or attach a description. Also, describe the method used for
	leachate disposal and provide the numbers of any federal, state or local permits for leachate disposal:
h.	If you answered no to either f or g, answer the following: Is the boundary of the active sewage sludge unit less than 150 meters from the property line of the surface.
i.	disposal site?YesNo If yes, provide the actual distance in meters: dry metric tons Remaining capacity of active sewage sludge unit, in dry metric tons: dry metric tons Anticipated closure date for active sewage sludge unit, if known: (MM/DD/YYY Provide with this application a copy of any closure plan developed for this active sewage sludge unit.
	ge Sludge from Other Facilities.
Is sew If yes,	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary.
Is sew If yes, a.	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name:
Is sew If yes,	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact:
Is sew If yes, a.	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact: Title:
Is sew If yes, a. b.	Page sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact: Title: Phone: () Phone: () Facility
Is sew If yes, a.	Page sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact: Title: Phone: () Mailing address.
Is sew If yes, a. b.	Page sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact: Title: Phone: () Mailing address.
Is sew If yes, a. b.	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact: Title: Phone: () Mailing address. Street or P.O. Box: State: Zip:
Is sew If yes, a. b.	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact: Title: Phone: () Mailing address. Street or P.O. Box: City or Town: State: Zip: List, on this form or an attachment, the facility's VPDES permit number as well as the numbers of all or federal, state or local permits that regulate the facility's sewage sludge management practices:
Is sew If yes, a. b.	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name: Facility contact: Title: Phone: () Mailing address. Street or P.O. Box: State: Zip: List, on this form or an attachment, the facility's VPDES permit number as well as the numbers of all or provide the following information for each such facility is defined additional sheets as necessary. Facility name: Yes No
Is sew If yes, a. b.	rage sludge sent to this active sewage sludge unit from any facilities other than yours?YesNo provide the following information for each such facility, attach additional sheets as necessary. Facility name:Facility contact: Title:Phone: ()Mailing address. Street or P.O. Box:City or Town:State:Zip: List, on this form or an attachment, the facility's VPDES permit number as well as the numbers of all of federal, state or local permits that regulate the facility's sewage sludge management practices: Permit Number:Type of Permit:

FAC		AME: Totopotomoy Wastewater Treatment Plant VPDES PERMIT NUMBER: VA0089915
	g.	Which vector attraction reduction option is achieved before sewage sludge leaves the other facility?
		Option 1 (Minimum 38 percent reduction in volatile solids)
		Option 2 (Anaerobic process, with bench-scale demonstration)
		Option 3 (Aerobic process, with bench-scale demonstration)
		Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
		Option 5 (Aerobic processes plus raised temperature)
		Option 6 (Raise pH to 12 and retain at 11.5)
		Option 7 (75 percent solids with no unstabilized solids)
		Option 8 (90 percent solids with unstabilized solids)
		None or unknown
	h.	Describe, on this form or another sheet of paper, any treatment processes used at the other facility to reduce
	11.	vector attraction properties of sewage sludge:
	i.	Describe, on this form or another sheet of paper, any other sewage sludge treatment activities performed by
		the other facility that are not identified in e - h above:
3.	Vecto	r Attraction Reduction.
	a.	Which vector attraction reduction option, if any, is met when sewage sludge is placed on this active sewage
	u.	sludge unit?
		Option 9 (Injection below land surface)
		Option 5 (Infection below land still acc) Option 10 (Incorporation into soil within 6 hours)
	1	Option 11 (Covering active sewage sludge unit daily)
	b.	Describe, on this form or another sheet of paper, any treatment processes used at the active sewage sludge unit to reduce vector attraction properties of sewage sludge:
4.	Groun	d Water Monitoring.
т.	a.	Is ground water monitoring currently conducted at this active sewage sludge unit or are ground water
	α.	monitoring data otherwise available for this active sewage sludge unit?YesNo
		If yes, provide a copy of available ground water monitoring data. Also provide a written description of the
		well locations, the approximate depth to ground water, and the ground water monitoring procedures used to
	,	obtain these data.
	b.	Has a ground water monitoring program been prepared for this active sewage sludge unit?
		YesNo If yes, submit a copy of the ground water monitoring program with this application.
	c.	Have you obtained a certification from a qualified ground water scientist that the aquifer below the active
		sewage sludge unit has not been contaminated?YesNo
		If yes, submit a copy of the certification with this application.
5.		pecific Limits.
	Are yo	u seeking site-specific pollutant limits for the sewage sludge placed on the active sewage sludge unit?
	Ye	SNo If yes, submit information to support the request for site-specific pollutant limits with this
	applica	ation.

Totopotomoy Wastewater Treatment Plant (TWWTP) VA0089915

Sludge Application Narrative and Contractor Information

The solids handling facilities at the Totopotomoy WWTP are designed to thicken, stabilize, and dewater solids generated during the liquid treatment process prior to final disposal.

The solids handling facilities consist of:

- Two waste activated sludge (WAS) pumps
- · Two aerobic digesters
- One gravity belt thickener (GBT)
- One thickened waste activated sludge (TWAS) pump
- · Two belt filter press feed pumps
- · One belt filter press (BFP)
- Two sludge truck/dumpster loading stations.

The WAS pumps draw waste activated sludge from the RAS Pump Station discharge piping and direct flow to either the GBT or directly to the aerobic digesters. Waste activated sludge is stabilized in the aerobic digesters prior to dewatering. For landfill disposal, the digested solids are pumped to the BFP for dewatering, and the dewatered cake is deposited in a dumpster for hauling to an approved landfill.

Virginia Waste Services operates a municipal solid waste landfill (Shoosmith Bros. Landfill) in Chester Virginia and is the current contracted vendor for the facilities biosolids disposal. The landfill is located at 11800 Lewis Road, Chester, VA 23831 at the intersection of Route 10 and Lewis Road.

Biosolids are transported to the landfill by Container First Services (CFS) LLC under a separate contract. Container First Services is located at 13140 Parkers Battery Road, Chester VA 23836. The hauling route from the TWWTP to the landfill generally follows the major roads in the Richmond metro area. The trucks leave the plant, drive west on Pole Green Road to I-295. Follow I-295 south to Route 10 in Chester and drive west on Route 10 to the landfill.

VPDES Permit Application Addendum

arabitis.	Entity to whom the permit is to be issued: Hanover County
44	ho will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be a facility or property owner.
2.	Is this facility located within city or town boundaries? Y/\infty
3.	What is the tax map parcel number for the land where this facility is located? 8726-62-7679
4.	For the facility to be covered by this permit, how many acres will be disturbed during the next five years due to new construction activities? None
5.	ALL FACILITIES: What is the design average flow of this facility? 7.0 MGD Industrial facilities: What is the max. 30-day avg. production level (include units)?
	In addition to the above design flow or production level, should the permit be written with limits for any other discharge flow tiers or production levels? $\bigcirc N$
	If AYes≅, please specify the other flow tiers (in MGD) or production levels: 10.0
PI du	ease consider: is your facility=s design flow considerably greater than your current flow? Do you plan to expand operations ring the next five years?
6.	Nature of operations generating wastewater: Municipal wastewater treatment
	100 % of flow from domestic connections/sources Number of private residences to be served by the wastewater treatment facilities: 01-49X50 or more
	% of flow from non-domestic connections/sources
	Mode of discharge: X ContinuousIntermittentSeasonal Describe frequency and duration of intermittent or seasonal discharges:
S.	Identify the characteristics of the receiving stream at the point just above the facility=s discharge point: Permanent stream, never dry
	Intermittent stream, usually flowing, sometimes dryEphemeral stream, wet-weather flow, often dry
	Fiffluent-dependent stream, usually or always dry
	Lake or pond at or below the discharge point X Other: Tidal River
9.	Approval Date(s): O & M Manual September 2010 Sludge/Solids Management Plan September 2004
	Have there been any changes in your operations or procedures since the above approval dates? Y







04/13/11 - Hanover County - Totopotomoy **Permit Application**

This analytical report contains 14 pages

Matt Ellinghaus Hanover County Department of Public Utilities P.O. Box 470 Hanover, VA 23069

mbellinghaus@co.hanover.va.us

cc: Regina Andrepont Cuthbert

racuthbert@co.hanover.va.us

Date Sent: 05/06/11

HRSD CEL, Central Environmental Laboratory is VELAP/NELAC accredited by DCLS, the Division of Consolidated Laboratory Services.

> VA Laboratory ID#: 460011 Effective Date: June 15, 2010 Expiration Date: June 14, 2011 Certificate # 643

Analytical test results meet all requirements of VELAP/NELAC unless otherwise noted under the analysis.

Test results relate only to the sample tested. Clients should be aware that a critical step in chemical or microbiological analysis is the collection of the sample.

This report may not be reproduced, except in full, without written approval from HRSD.

If you have any questions concerning this report, please do not hesitate to call Danny Barker, TSD Environmental Scientist at (757) 460-4247, Robin Parnell, CEL Laboratory Manager at (757) 460-4203 or Cindi Reno, CEL Administrative Assistant at (757) 460-4205.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code:

Field Blank HAN_TO

Sample Point:

Sample Date:

04/13/11

FB

	0 4/ 20/ 22						
				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Total Metals							
Chromium	EPA 200.8	ug/L	< 5.0	5.0	KWILLI	04/26/11	16:39
Dissolved Metals							
Antimony	EPA 200.8	ug/L	< 20.0	20.0	KWILLI	04/26/11	16:45
Arsenic	EPA 200.8	ug/L	<20.0	20.0	KWILLI	04/26/11	16:45
Beryllium	EPA 200.8	ug/L	<1.0	1.0	KWILLI	04/26/11	16:45
Cadmium	EPA 200.8	ug/L	<0.1	0.1	KWILLI	04/26/11	16.45
Chromium III (measured as Total Chromium)		ug/L	<5.0	5.0	KWILLI	04/26/11	16:39
Chromium VI (measured as Total Chromium)		ug/L	<5.0	5.0	KWILLI	04/26/11	16:39
Copper	EPA 200.8	ug/L	<1.0	1.0	KWILLI	04/26/11	16:45
Lead	EPA 200.8	ug/L	<1.0	1.0	KWILLI	04/26/11	16:45
Mercury	EPA 245.1	ug/L	< 0.20	0.20	SLABOC	04/20/11	10:05
Nickel	EPA 200.8	ug/L	<2.0	2.0	KWILLI	04/26/11	16:45
Selenium	EPA 200.8	ug/L	< 2.0	2.0	KWILLI	04/26/11	16:45
Silver	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	04/26/11	16:45
Thallium	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	04/26/11	16:45
Zinc	EPA 200.8	ug/L	<10.0	10.0	KWILLI	04/26/11	16:45

Notes:

Report Limit is lowest concentration at which quantitation is demonstrated.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code:

Field Blank

Sample Point: Sample Date: HAN_TO

04/13/11

FB

Report Analysis Analysis Limit1 Analyte Method Unit Result Analyst Date Time Volatile Organics Acrolein EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Acrylonitrile EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Benzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Bromoform EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Carbon Tetrachloride EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Chlorobenzene (Monochlorobenzene) EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Chlorodibromomethane EPA 624 <10.0 10.0 ug/L SLOPEZ 04/15/11 17:58 Chloroethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 2-Chloro-ethylvinyl Ether EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Chloroform EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Dichlorobromomethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,2 Dichlorobenzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,3 Dichlorobenzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,4 Dichlorobenzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,1-Dichloroethane **EPA 624** ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,2-Dichloroethane **EPA 624** ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,1-Dichloroethylene EPA 624 ug/L <10.0 10.0 **SLOPEZ** 04/15/11 17:58 1,2-trans-Dichloroethylene <10.0 10.0 EPA 624 ug/L SLOPEZ 04/15/11 17:58 1,2-Dichloropropane EPA 624 <10.0 10.0 ug/L **SLOPEZ** 04/15/11 17:58 1,3 Dichloropropylene (1,3-Dichloropropene)² EPA 624 <20.0 20.0 **SLOPEZ** ug/L 04/15/11 17:58 Ethylbenzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Methyl Bromide EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Methyl Chloride EPA 624 <10.0 10.0 ug/L SLOPEZ 04/15/11 17:58 Methylene Chloride (Dichloromethane) EPA 624 <10.0 10.0 04/15/11 ug/L SLOPEZ 17:58 1,1,2,2-Tetrachloroethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Tetrachloroethylene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Toluene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,1,1-Trichloroethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 1,1,2-Trichloroethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 17:58 Trichloroethylene (Trichloroethene) EPA 624 ug/L <10.0 10.0 SLOPEZ. 04/15/11 17:58

Notes

Vinyl Chloride

EPA 624

ug/L

<10.0

10.0

SLOPEZ

04/15/11

17:58

¹ Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,3-Dichloropropylene is the total of cis-1,3-Dichloropropylene and trans-1,3-Dichloropropylene.





Analysis

Time

1432 Air Rail Avenue, Virginia Beach, VA 23455-3002 • 757.460.4205 • Fax: 757.460.6586 • www.hrsd.com

CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code: Sample Point: HAN_TO FB

Sample Date:	04/13/11					
Analyte	Method	Unit	Result	Report Limit ¹	Analyst	Analysis Date
Semi-Volatile Organics-Acid Extractables						
p-Chloro-m-cresol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11
2-Chlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11
2,4 Dichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11

Semi-Volatile Organics-Acid Extractables							
p-Chloro-m-cresol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2-Chlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2,4 Dichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2,4 Dimethylphenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
4,6-Dinitro-o-cresol (2-Methyl-4,6-dinitrophenol)	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2,4-Dinitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
4-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Pentachlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Phenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2,4,6 Trichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Semi-Volatile Organics - Base Neutral Extractables							
Acenaphthene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Acenapthylene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Benzidine	EPA 625	ug/L	<10.0	10.0	IGERAS	04/30/11	18:12
Benzo(a)anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Benzo(a)pyrene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Benzo(b)fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Benzo(k)fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Benzo(GHI)Perylene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Bis-(2-chloroethyl)-Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Bis-(2-Chloroethoxy) Methane	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Bis-2-(Chloroisopropyl) Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Bis-2-ethyl hexyl phthalate (Di-2-Ethylhexyl Phthlate)	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
4-Bromophenyl Phenyl Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Butyl benzyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2-Chloronaphthalene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
4-Chlorophenyl phenyl ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Chrysene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Dibenzo(a,h) anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Dibutyl phthalate (Di-n-butyl phthalate)	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Di-n-octyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34

Report Limit is lowest concentration at which quantitation is demonstrated.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN TO

Sample Point:

FB

Sample Date:		04/13/11						
					Report		Analysis	Analysis
Analyte		Method	Unit	Result	Limit ¹	Analyst	Date	Time
3,3-Dichlorobenzidine		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Diethyl phthalate		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Dimethyl Phthalate		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2,4-Dinitrotoluene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
2,6-Dinitrotoluene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
1,2-Diphenylhydrazine ^{2,∆}		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Fluoranthene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Fluorene	化子头 化二氯甲基苯酚	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Hexachlorobenzene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Hexachlorobutadiene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Hexachlorocyclopentadiene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Hexachloroethane		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Indeno(1,2,3-cd)pyrene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Isophorone		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Naphthalene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Nitrobenzene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
N-Nitrosodi-n-propyl amine		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
N-Nitrosodimethylamine		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
N-Nitrosodiphenylamine ³		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Phenanthrene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
Pyrene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34
1,2,4 Trichlorobenzene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	01:34

 $[\]frac{\textbf{Notes:}}{^{I}} \textit{Report Limit is lowest concentration at which quantitation is demonstrated.}$

² 1,2-Diphenylhydrazine gets converted to Azobenzene in the extraction process.

 $^{^3}$ N-Nitrosodiphenylamine decomposes in the injection port to Diphenylamine.

 $^{^{\}it \Delta}$ Parameter is not included in HRSD CEL VELAP scope of accreditation.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN_TO

Sample Point: Sample Date: FB

04/13/11

	y	74/XJ/XX						
					Report		Analysis	Analysis
Analyte		Method	Unit	Result	Limit ¹	Analyst	Date	Time
Pesticides & PCB's								
alpha-BHC (Hexachlorocyclohexane)		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	16:43
beta-BHC (Hexachlorocyclohexane)		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	16:43
DDD		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	16:43
DDE		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	16:43
Dieldrin		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	16:43
Endrin aldehyde		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	16:43
Heptachlor epoxide		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	16:43
Kepone		EPA 608	ug/L	< 0.10	0.10	CCURRY	04/20/11	07:55
PCB 1016		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:35
PCB 1221		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:35
PCB 1232		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:35
PCB 1242		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:35
PCB 1248		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:35
PCB 1254		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:35
PCB 1260		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:35
PCB Total		EPA 608	ug/L	< 7.00	7.00	CCURRY	04/19/11	22:35

Notes:

Authorization:_

Lab Manager /QA Manager

Date: 05-05-11

Report Limit is lowest concentration at which quantitation is demonstrated.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code: Sample Point: HAN_TO FNE

Sample Date:

04/13/11

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Miscellaneous Parameters					······································		
Cyanide	EPA 335.4	ug/L	<10	10	JRICKS	04/22/11	13:38
Sulfide (Hydrogen sulfide)	ASTM D 4658-03	mg/L	<0.1	0.1	JRICKS	04/15/11	12:30
· Oil and Grease HEM	EPA 1664A	mg/L	< 5.0	5.0	JRICKS	04/21/11	07:50
- Total Dissolved Solids	SM 2540C	mg/L	436	1	RCASTR	04/14/11	18:00
- Total Phenol	EPA 420.4	mg/L	< 0.05	0.05	JRICKS	04/22/11	09:43
- Hardness (as CaCO ₃)	SM2340B	mg eq	78.4	0.20	SWILLI	04/19/11	13:50
		CaCO ₃ /L					
Total Metals							
Chromium	EPA 200.8	ug/L	< 5.0	5.0	KWILLI	04/26/11	16:51
Dissolved Metals		4.5					
⁴ Antimony	EPA 200.8	ug/L	<20.0	20.0	KWILLI	04/26/11	. 17:28
· Arsenic	EPA 200.8	ug/L	<20.0	20.0	KWILLI	04/26/11	17:28
Beryllium	EPA 200.8	ug/L	<1.0	1.0	KWILLI	04/26/11	17:28
Cadmium	EPA 200.8	ug/L	< 0.1	0.1	KWILLI	04/26/11	17:28
Chromium III (measured as Total Chromium)		ug/L	< 5.0	5.0	KWILLI	04/26/11	16:51
Chromium VI (measured as Total Chromium)		ug/L	< 5.0	5.0	KWILLI	04/26/11	16:51
* Copper	EPA 200.8	ug/L	1.1	1.0	KWILLI	04/26/11	17:28
· Lead	EPA 200.8	ug/L	<1.0	1.0	KWILLI	04/26/11	17:28
* Mercury	EPA 245.1	ug/L	< 0.20	0.20	SLABOC	04/20/11	10:08
Nickel	EPA 200.8	ug/L	<2.0	2.0	KWILLI	04/26/11	17:28
* Selenium	EPA 200.8	ug/L	< 2.0	2.0	KWILLI	04/26/11	17:28
` Silver	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	04/26/11	17:28
· Thallium	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	04/26/11	17:28
· Zinc	EPA 200.8	ug/L	36.7	10.0	KWILLI	04/26/11	17:28

¹ Report Limit is lowest concentration at which quantitation is demonstrated.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code:

Final Effluent

Sample Point:

HAN_TO FNE 04/13/11

Sample Date: Report Analysis Analysis Analyte Limit¹ Method Unit Result Analyst Date Time Volatile Organics Acrolein EPA 624 <50.0 50.0 ug/L SLOPEZ 04/15/11 21:27 Acrylonitrile EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Benzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Bromoform EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Carbon Tetrachloride EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Chlorobenzene (Monochlorobenzene) EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Chlorodibromomethane EPA 624 ug/L <10.0 10.0 **SLOPEZ** 04/15/11 21:57 Chloroethane EPA 624 ug/L <10.0 10.0 **SLOPEZ** 04/15/11 21:57 2-Chloro-ethylvinyl Ether EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Chloroform EPA 624 <10.0 10.0 ug/L SLOPEZ 04/15/11 21:57 Dichlorobromomethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,2 Dichlorobenzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,3 Dichlorobenzene EPA 624 ug/L <10.0 10.0 **SLOPEZ** 04/15/11 21:57 1,4 Dichlorobenzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,1-Dichloroethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,2-Dichloroethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,1-Dichloroethylene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,2-trans-Dichloroethylene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,2-Dichloropropane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,3 Dichloropropylene (1,3-Dichloropropene)² EPA 624 ug/L <20.0 20.0 SLOPEZ 04/15/11 21:57 Ethylbenzene EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Methyl Bromide EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Methyl Chloride EPA 624 ug/L <10.0 10.0 SLOPEZ 21:57 04/15/11 Methylene Chloride (Dichloromethane) EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 1,1,2,2-Tetrachloroethane EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Tetrachloroethylene ug/L EPA 624 <10.0 10.0 SLOPEZ 04/15/11 21:57 Toluene EPA 624 ug/L <10.0 10.0 **SLOPEZ** 04/15/11 21:57 1,1,1-Trichloroethane EPA 624 ug/L <10.0 10.0 **SLOPEZ** 04/15/11 21:57 1,1,2-Trichloroethane ug/L EPA 624 <10.0 10.0 SLOPEZ 04/15/11 21:57 Trichloroethylene (Trichloroethene) EPA 624 ug/L <10.0 10.0 SLOPEZ 04/15/11 21:57 Vinyl Chloride EPA 624 ug/L <10.0 10.0 **SLOPEZ** 04/15/11 21:57

Report Limit is lowest concentration at which quantitation is demonstrated.

 $^{^2}$ 1,3-Dichloropropylene is the total of cis-1,3-Dichloropropylene and trans-1,3-Dichloropropylene.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code: Sample Point: HAN_TO FNE

Sample Pate:

04/13/11

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Semi-Volatile Organics-Acid Extractables							
p-Chloro-m-cresol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2-Chlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2,4 Dichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02.08
2,4 Dimethylphenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
4,6-Dinitro-o-cresol (2-Methyl-4,6-dinitrophenol)	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2,4-Dinitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
4-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Pentachlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Phenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2,4,6 Trichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Semi-Volatile Organics - Base Neutral Extractables							
Acenaphthene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Acenapthylene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Benzidine	EPA 625	ug/L	<10.0	10.0	IGERAS	04/30/11	18:45
Benzo(a)anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Benzo(a)pyrene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Benzo(b)fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Benzo(k)fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Benzo(GHI)Perylene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Bis-(2-chloroethyl)-Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Bis-(2-Chloroethoxy) Methane	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Bis-2-(Chloroisopropyl) Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Bis-2-ethyl hexyl phthalate (Di-2-Ethylhexyl Phthlate)	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
4-Bromophenyl Phenyl Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Butyl benzyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2-Chloronaphthalene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
4-Chlorophenyl phenyl ether	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Chrysene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Dibenzo(a,h) anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Dibutyl phthalate (Di-n-butyl phthalate)	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Di-n-octyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
		-					

Report Limit is lowest concentration at which quantitation is demonstrated.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code:

HAN_TO

Sample Point: Sample Date:

FNE

04/13/11

Sample Date:	(14/13/11						
erent en					Report		Analysis	Analysis
Analyte		Method	Unit	Result	Limit ¹	Analyst	Date	Time
3,3-Dichlorobenzidine		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Diethyl phthalate		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Dimethyl Phthalate		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2,4-Dinitrotoluene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
2,6-Dinitrotoluene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
1,2-Diphenylhydrazine ^{2,∆}		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Fluoranthene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Fluorene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Hexachlorobenzene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Hexachlorobutadiene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Hexachlorocyclopentadiene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Hexachloroethane		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Indeno(1,2,3-cd)pyrene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Isophorone		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Naphthalene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Nitrobenzene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
N-Nitrosodi-n-propyl amine		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
N-Nitrosodimethylamine		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
N-Nitrosodiphenylamine ³		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Phenanthrene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
Pyrene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08
1,2,4 Trichlorobenzene		EPA 625	ug/L	<10.0	10.0	IGERAS	04/28/11	02:08

 $[\]overline{I}$ Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,2-Diphenylhydrazine gets converted to Azobenzene in the extraction process.

³ N-Nitrosodiphenylamine decomposes in the injection port to Diphenylamine.

 $^{^{\}Delta}$ Parameter is not included in HRSD CEL VELAP scope of accreditation.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code:

HAN_TO

Sample Point: Sample Date:

FNE 04/13/11

Sample Date.	U	14/13/11						
					Report		Analysis	Analysis
Analyte		Method	Unit	Result	Limit ¹	Analyst	Date	Time
Pesticides & PCB's		*	42.1					
alpha-BHC (Hexachlorocyclohexane)		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	17:04
beta-BHC (Hexachlorocyclohexane)		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	17:04
DDD		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	17:04
DDE		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	17:04
Dieldrin		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	17:04
Endrin aldehyde		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	17:04
Heptachlor epoxide		EPA 608	ug/L	< 0.05	0.05	CCURRY	04/19/11	17:04
Kepone		EPA 608	ug/L	< 0.10	0.10	CCURRY	04/20/11	08:15
PCB 1016		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:56
PCB 1221		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:56
PCB 1232		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:56
PCB 1242		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:56
PCB 1248		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:56
PCB 1254		EPA 608	ug/L	<1.00	1.00	CCURRY	04/19/11	22:56
PCB 1260		EPA 608	ug/L	<1.01	1.00	CCURRY	04/19/11	22:56
PCB Total		EPA 608	ug/L	< 7.00	7.00	CCURRY	04/19/11	22:56

Authorization:

Lab Manager (QA Manager

Report Limit is lowest concentration at which quantitation is demonstrated.



CENTRAL ENVIRONMENTAL LABORATORY QUALITY ASSURANCE REPORT

Levell



Project: Hanover County - Totopotomoy WWTP

Project Code: HAN_TO

Sample Point: FB; FNE

Sample Date: 04/13/11

•													
Analytical Run Information	Sb	As	Be	Cd	Ċ.	Cu	Pb	Hg	ž	Se	Ag	passed [reso(Zn
Method	200.8	200.8	200.8	200.8	200.8	200.8	200.8	245.1	200.8	2,00.8	200.8	200.8	200.8
Units	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ug/L	mg/L	mg/L	7/Sn	ug/L	ng/L	7/811
Method Detection Limit (MDL	0.07	0.03	0.01	0.009	0.00	0.09	0.03	0.03	0.04	0.04	0.008	0.03	0.13
Report Limit (RL)	20.0	20.0	1.0	0.1	5.0	0.1	1.0	0.20	2.0	2.0	0.1	0.1	10.0
Average LRB	*60.0	<0.03	<0.01	0.010*	<0.09	<0.0>	<0.03	<0.03	*20.0	<0.04	*800.0	<0.03	<0.13
Dissolved Metals					ڻ			Ho					Hermonreal patricular second and second
Contactoristical description of the property o	The Title South State of the St	WARRANT CO.	SERVICE CONTRACTOR CON			Carried and Control of the Control o		0	Commence of the Commence of th				

Dissolved Internis					כֿ			D.D					
Sample ID: HAN_TO FNE								TO THE PROPERTY OF THE PROPERT	entitional des controls des con	OCONTO DE POSICIONE DE POSICION	THE COMMENTS OF THE PROPERTY O		
Matrix Spike Conc.					10.0						:		
MS Percent Recovery					%96								
MSD Percent Recovery					%96								
MS/MSD RPD					$\overline{\nabla}$								
Total Metals	Sb	As	Be	Cd		Cu	Pb	Hg	Z	Se	Ag	1	Zn
Sample ID: HAN TO FNE							oran especial contraction of the	serentario de la composició de la compos	ndostaria mana usa un nacionale de la companione de la co	AND THE SAME OF THE PROPERTY O			
Matrix Spike Conc.	50.0	50.0	S	1.0		10.0	10.0	1.00	10.0	10.0	1.0	1.0	50.0
MS Percent Recovery	100%	%86	94%	%76		85%	100%	121%	84%	94%	%06	101%	84%

82%

100%

%68

%66

84%

124%

101%

%98

92%

94%

%66

100%

MSD Percent Recovery

MS/MSD RPD

LRB - Laboratory Reagent Blank

MS - Matrix Spike
MSD - Motrix Spike

MSD - Matrix Spike Duplicate

RPD - Relative Percent Difference

*Report Limit is lowest concentration at which quantitation is demonstrated. Values below Report Limit should not be used for compliance determinations due to a high degree of uncertainty.

Validated By: Kew Mil

Date: OSOULIN

			CENI	AL ENVIR 1432 A VIRGINIA	CENTRAL ENVIRONMENTAL LABORATORY 1432 AIR RAIL AVENUE VIRGINIA BEACH, VA 23455	L LABOKA ENUE A 23455	- TORY			CHAIN	CHAIN OF CUSTODY	λQ				
Cleaning wastewa	Cleaning wastewater every day for a better Bay,	ter Bay.		HEL FAX	TEL: 757-460-4214 FAX: 757-460-6586	214 586			AN	ALYSES	REQUESTE	D, CGN & N	VUMBER O	ANALYSES REQUESTED, CGN & NUMBER OF CONTAINERS	ERS	
PROJECT NAME/CODE:Hanover County_Totopotomoy	CODE:Hanov	ver County_T	'otopotomoy_	Transmission of the second				(A) ablasy	(388) esserĐ	(\$) forent (\$)					Project in Lims? Yes No	n Lims? No
	HRSD Use Only	se Only	g-manuscas-			Circle One	Circle One)	S IIO	JoT	diritiro de la constitución de la c	эгсгүү энгий баруусаа	dissolution and an extension		HRSD Use Only	se Only
CUSTOMER SAMPLE ID	PROJECT CODE	SAMPLE	DATE	TIME	SAMPLED BY	MATRIX	SAMPLE								Presv'd Checked	CONT.
	HAN_TO	FNE	4/13/2011	0430	JR	7	9	7	7.	<u>.</u> 2					7	و
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						12.		-				Action 1998 22 Florence (Parameter Section 1998)	and the second second second second			***************************************
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COMMENTS:	* No introprences found	tragre	nces f	ر مريمو	7-4K		ALMINISTO SEATON AL COMMUNICATION OF A SEATON ASSESSMENT OF A SEATON	SCANICACIONE DE CONTRACTOR DE					For Gr Temp Temp	Forschund Waterlüke Enly- Temo, Blank 12. Forschilbank 22.	Use Only	
Doling ichod by Cionchia	XMIN				Y			Temp	Temp. Requirement			0	*Preservatives	vatives		
Received by / Signature	ature /	が、大	m.		Date/Time		100 P	Whe submitte	Where required, submitted samples were	PROPERTY AND ADDRESS OF THE PARTY AND ADDRESS	ng, metars 0&G (pH<2	hg, Metals (physz - hlybs) (Clean metals on *O&G (physz - HC), check in section) & store	73) (Clean I k in section	S CX	In section)	(Terus) to an extended constitution
Relinquished by / Signature	Signatufe //				Date/Time	3	The state of the s	franspo	transported in coolers	COMMUNICATION.	N. (pH>12	CN (pH>12 - NaOH) & store ≤ 6 °C	tore < 6 °C		utermental destroyments of the second	
Received by / Signature	nature				Date/Time			mainta	maintaiped at ≤ 6 °C.	Someon	Sulfide (pH>	*Sulfide (pH>9 - NaOH+ZnAc) & store ≤ 6 °C	ZnAc) & sto)re ≤ 6 °C	emodelengmentalengem für kytosotra	etti pananti Costabite eku
Relinquished by / Signature	Signature	***************************************	***************************************		Date/Time			Yes	No.	-vonced	Micro (Na ₃ S	*Micro (Na ₃ S ₂ O ₃ + EDTA) & store < 10 9 C) & store <	10 °C		
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Relinquished by / Signature	Signature				Date/Time	,		Trick	关	à I	TOC (pH<2	*TOC (pH<2 - H ₃ PO ₄) & store < 6 °C	store < 6 °C		electronic de la company de la	- Anna Carlo
Received by / Signature	ature			- Control of the Cont	Date/Time					*	BOD, TSS,	TVSS, Turbi	dity, Surfac	*BOD, TSS, TVSS, Turbidity, Surfactant, Sulfate store < 6 °C	store < 6 °(
1.0				To the second se		The second					NUT Non A	sidified, Con	ductivity, O	*NUT Non Acidified, Conductivity, Organics store	> 0 °C	and the second second second second
All sample(s) met proper *preservation requirements.	proper *preser	vation require	ements.		Yes		, Z		The Park		(VI) (DT 9.3 - 9.7	N) - 2'7 - C'6	74/25U4) &	- (INT4)2504) & SIOIE 5 0 C	Avvice control for the control of th	SCHOOLS SEE SEASONS
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Sample Type: C=Composite, G=Grab Matrix: L= Liquid, S = Solid NOTE: ALL APPLICABLE INFORMATION MILIST BE COMPLETED PRIOR TO ACCEPTANCE	Composite, G≂G CABLE INFOR	irab MATION MUS	TRECOMP	Matrix: L= FTFD PRI	Matrix: L= Liquid , S = Solid FTED PRIOR TO ACCEPT	Solid	NOTONO DE TUTO LO NOTONO DE TUTO DE TU	CGN: OP	CGN: Container Group Number	dmuN duo	enenaconnementation (C)	PROTECTION TO THE PROTECTION OF THE PROTECTION O	APAGO VATILIS ELO PRODUCTO MESTANOMOS	orcountenes de copposite entré grande de la construit de la co	THE	ALEXANDER REPORTED TO THE PROPERTY OF THE PROP
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				Ž.	. /5/-460-50	දු		ALAS COMPANY OF THE PROPERTY O	WN. W	LIGES N	EXUROID	U, CGN &	NOMBE	ZOJ TO Z	AINERS		
PROJECT NAME/CODE:		/er County_T	_Hanover County_Totopotomoy	***************************************				Metals (5)	(55) zision b	(81) abilius r	(t) ablics between	1010B)	(3010t)	ganics (99C)	ALL CASE OF THE PROPERTY OF TH	Project in Lims?	ims? No
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CUSTOMER SAMPLE ID	PROJECT	SAMPLE POINT	DATE	TIME	SAMPLED BY	MATRIX	SAMPLE							e de la companya de l	Pre	Presv'd C	CONT.
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A Company of the Comp				Tayley well of the recommendate of packets of the con-	Application of the second seco	A particular and the second se	9	CONTRACTOR OF THE PARTY OF THE	PRECORDINATION OF STREET, S. L.		ESTRATUS CALIFORNIA AND A STREET	Hermonical Ecological Actions	Ter	fema-slabk2		9	
Relinquished by / Signature	ξ	0 1 10	くがえ	And the second second	Section of the sectio	5	大学	lemp. r	remp. neguirement				*Pres	*Preservatives			PROPERTY.
Doogwad by / C:			0		Date/ Hittle 7	-	I	Where	Where required,	waren die	g, Metals (H-Z-HN	03) (Clea	*Hg, Metals (pH<2 - HNO3) (Clean metals check in section)	neck in se	ction)	
Naceived by Colgin	ature The	なり他			Date/Time <	1131115	など	submitted samples were	samples	SECON ENGINEER	&G (pH<2	HCI, che	ck in secti	*O&G (pH<2 - HCl, check in section) & store < 6	၁, ဗ >		Carten
Relinquished by / Signatur	ignature	+			Date/Time			transport	transported in coolers	SSEQUENCES OF THE PARTY OF THE	CN (pH>12 - NaOH) & store < 6 °C	NaOH) &	store < 6	ပ္ပ		MACHINA MACHIN	
Received by / Signature	ature	7			Date/Time	***************************************		maintain	maintained at < 6 °C.	UMA DARBAS	<hd) apjlir<="" td=""><td>3 - NaOH+</td><td>ZnAc) & s</td><td>*Sulfide (pH>9 - NaOH+ZnAc) & store < 6 °C</td><td>With an Committee of the Committee of th</td><td>and a second second</td><td></td></hd)>	3 - NaOH+	ZnAc) & s	*Sulfide (pH>9 - NaOH+ZnAc) & store < 6 °C	With an Committee of the Committee of th	and a second	
neilliquished by / Signature	gnature				Date/Time			1 22	si si	N.	*Micro (Na ₃ S ₂ O ₃ + EDTA) & store < 10	O ₃ + EDT.	4) & store	< 10 °C	Autoroxiamiscusti gallacepeaning	anniente de la company de la c	- Collection and the Collection
Received by / Signature	ature				Date/Time	:		422	5 6	ĮŎ 	JD, NUT, I	d) slouel	H<2 - H,S	*COD, NUT, Phenois (pH<2 - H_2O_4) & store < 6 °C	0,9>6	est/Ajvesonvenessevpress	Claringuriozenauca
Relinquished by / Signature	ignature				Date/Time			7 7 7	¥	T,	'TOC (pH<2 - H ₃ PO₄) & store < 6 °C	H₃PO₄) &	store < 6	C	CONTROL DESCRIPTION OF THE PERSON OF THE PER	THE OF PERSONS AND ASSESSED.	The state of the s
Received by / Signature	ıfure		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997		Date/Time			7		Ţ	*BOD, TSS, T	VSS, Turk	idity, Surf	TVSS, Turbidity, Surfactant, Sulfate store <	fate store	2° 8 >	- Contraction of the Contraction
And the second s										ĮŽ	JT Non Aci	diffed, Cor	iductivity.	*NUT Non Acidified, Conductivity, Organics store < 6	tore < 6 °C		
All cample(c) met	***************************************				;)			B	Ç.	*Cr (VI) (pH 9.3 - 9.7	3-9.7-(1	JH4)2SO4)	- $(NH_4)_2SO_4$) & store ≤ 6 °C	3°C		
ampre(s) met proper preservation requirements.	Joher preserv	ation require	ments.		Yes)	No	Tut	M		STERRICATION OF THE OWNER, SHEET STEELS OF THE O	SCENSARORA POR CONTRACTOR CONTRACTOR	200 A COLOR STREET, ST			200 (4000) (1000) (1000)	
Martin Commence and Commence an	CONTRACTOR OF THE PROPERTY OF	WWYGENOTICATION DEBENDACHED TO THE PARTY OF	TOTAL TOTAL STATE OF THE STATE	- TOTAL PROPERTY OF THE PROPER	THE PERSON NAMED OF THE PE			_		SECURIOR	1				OF SETTINGS OF THE PROPERTY OF	THE REPORT OF THE PERSON AND THE PER	On the Control of the

CGN: Container Group Number

Sample Type: C=Composite, G=Grab
NOTE: ALL APPLICABLE INFORMATION MUST BE COMPLETED PRIOR TO ACCEPTANCE,

FIELD RECORD (S)

Totopotomoy Treatment Plant Field Sheet

	Information To Be Checked Before The Start of Each Sampling Event
1.	Does the Final Effluent have any abnormal characteristics (odor, color)? Y
	If the answer to the above questions is NO proceed to the next section. Please contact a supervisor if the answer is YES.
2.	A. Average Plant flow for the last five days: 2.36m6 B. Expected Plant flow for the next 24 hours: 2.4m6
3.	List the last three days of Final Effluent TSS with the most recent last: 411 6.6, 414 3.6, 3127 2.8
4.	Contact Closure: (Expected Flow / 1000 / 40) Pulses per sample.
5.	Samplers for Final Effluent & FB calibrated at 450 ml per sample. (Desired volume/) Final Effluent Start Time / Date: 1017 @ 4112111 FB Start Time / Date: 1017 @ 4112111
Th	e above information has been completed prior to the beginning of the sampling event. Int.
Sat	mpling personnel: J. Reitz, A.Williamson
241	Information Check At The End Of The Sampling Event
1.	Are all lids, compression assemblies and caps secure Y N
2.	Final Effluent TSS for the sampling period: \(\frac{\pi}{\pi} \frac{391M61D}{\pi} \frac{\pi}{\pi} \(io. 0 mg/L 4 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
3.	Plant flow for the sampling period 2.39 mg
4.	Number of samples collected in each Final Effluent & FB composite container: Final Effluent: 42 FB: 41 * TBT: MA
5.	Final Effluent & FB composite end time and date: Final Effluent End Time / Date: 1017 @ 4113111 FB End Time / Date: 1017 @ 4113111
6.	Is Temperature in collection container at the end of sampling <6° C? (Y) N
7.	Are sample volumes equal in all composite containers? Y (N) *
8.	Grab times and dates: FB VOA: 0910 @ 4/13/11 FNE VOA: 0915 @ 4/13/11 Cyanide: 0930 @ 4/13/11 Phenol: 0930 @ 4/13/11 Oil & Grease: 0930 @ 4/13/11
Sarr	npling personnel: J. Reitz, A. Williamson
	Please contact project lead with any problems incurred during the sampling event.
Rec	ord any other information that could affect sample results:
A	- FB missed last sample ran out of source water





11/16/11 - Hanover County - Totopotomoy Permit Application

This analytical report contains 12 pages

Matt Ellinghaus Hanover County Department of Public Utilities P.O. Box 470 Hanover, VA 23069

mbellinghaus@co.hanover.va.us

cc: Regina Andrepont Cuthbert

racuthbert@co.hanover.va.us

Date Sent:

12/06/11

HRSD CEL, Central Environmental Laboratory is VELAP/NELAC accredited by DCLS, the Division of Consolidated Laboratory Services.

VA Laboratory ID#: 460011 Effective Date: October 11, 2011 Expiration Date: June 14, 2012 Certificate # 1248

Analytical test results meet all requirements of VELAP/NELAC unless otherwise noted under the analysis.

Test results relate only to the sample tested. Clients should be aware that a critical step in chemical or microbiological analysis is the collection of the sample.

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If you have any questions concerning this report, please do not hesitate to contact Danny Barker, TSD Environmental Scientist at (757) 460-4247

dbacker@hrsd.com

Robin Parnell, CEL Laboratory Manager at (757) 460-4203.

cparaeli@hrsd.com

Cindi Reno, CEL Administrative Assistant at (757) 460-4205.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN_TO

Sample Point: Sample Date:

11/16/11

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Total Metals				***************************************			
Chromium	EPA 200.8	ug/L	<1.0	1.0	KWILLI	11/28/11	10:54
Selenium	EPA 200.8	ug/L	≤0.50	0.50	KWILLI	11/28/11	10:54
Dissolved Metals							
Antimony	EPA 200.8	ug/L	<1.0	1.0	KWILLI	11/28/11	10:47
Arsenic	EPA 200.8	ug/L	<1,0	1.0	KWILLI	11/28/11	10:47
Beryllium	EPA 200.8	ug/L	< < 0.10	0.10	KWILLI	11/28/11	10:47
Cadmium	EPA 200.8	ug/L	<0.05	0.05	KWILLI	11/30/11	10:56
Chromium III (measured as Total Chromium)		ug/L	<1.0	1.0	KWILLI	11/28/11	10;54
Chromium VI (measured as Total Chromium)		ug/L	<1.0	1.0	KWILLI	11/28/11	10:54
Copper	EPA 200,8	ug/L	< 0.50	0.50	KWILLI	11/28/11	10:47
Lead	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	11/30/11	10:56
Mercury	EPA 245.1	ug/L	< 0.10	0.10	SLABOC	11/30/11	09:14
Nickel	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	11/28/11	10:47
Silver	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	11/28/11	10:47
Thallium	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	11/30/11	10:56
Zinc	EPA 200.8	ug/L	<1.0	1.0	KWILLI	11/28/11	10:47

 $[\]frac{\textbf{Notes:}}{^{I}} \textit{Report Limit is lowest concentration at which quantitation is demonstrated.}$





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN_TO

Sample Point:

FB

Sample Date:

11/16/11

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Volatile Organics	 	***************************************			······································	······································	***************************************
Acrolein	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Acrylonitrile	EPA 624	ug/L	<10.0	10.0	SLOPEZ.	11/18/11	13:21
Benzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Bromoform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Carbon Tetrachloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Chlorobenzene (Monochlorobenzene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Chlorodibromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Chloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
2-Chloro-ethylvinyl Ether	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Chloroform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Dichlorobromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,2 Dichlorobenzene	EPA 624	ng/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,3 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,4 Dichlorobenzene	EPA 624	ug/L,	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,1-Dichlorgethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,2-Dichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,1-Dichloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,2-trans-Dichloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,2-Dichloropropane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,3 Dichloropropylene (1,3-Dichloropropene) ²	EPA 624	ug/L	<20.0	20.0	SLOPEZ	11/18/11	13:21
Ethylhenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Methyl Bromide	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Methyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Methylene Chloride (Dichloromethane)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13;21
1, F,2,2-Tetrachloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Tetrachloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Toluene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,1,1-Trichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
1,1,2-Trichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Trichloroethylene (Trichloroethene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21
Vinyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	13:21

Notes:

Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,3-Dichloropropylene is the total of cis-1,3-Dichloropropylene and trans-1,3-Dichloropropylene.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN_TO

Sample Point:

FB

Sample Date: 11/16/11

		. :		Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Semi-Volatile Organics-Acid Extractables					######################################		
p-Chloro-m-cresol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
2-Chlorophenal	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
2,4 Dichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
2,4 Dimethylphenol	EPA 625	ug/L	<10.0	10,0	IGERAS	11/29/11	23:39
4,6-Dinitro-o-cresol (2-Methyl-4,6-dinitrophenol)	EPA 625	ug/L	<10.0.	10.0	IGERAS	11/29/11	23:39
2,4-Dinitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23;39
2-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
4-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Pentachlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Phenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
2,4,6 Trichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Semi-Volatile Organics - Base Neutral Extractables							
Acenaphthene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Acenapthylene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Benzidine	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Benzo(a)anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Benzo(a)pyrene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Benzo(b)fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Benzo(k)fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Benzo(GHI)Perylene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Bis-(2-ehloroethyl)-Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Bis-(2-Chioroethoxy) Methane	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Bis-2-(Chloroisopropyl) Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Bis-2-ethyl hexyl phthalate (Di-2-Ethylhexyl Phthlate)	EPA 625	ug/L	<10.0	0.01	IGERAS	11/29/11	23:39
4-Bromophenyl Phenyl Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	1.1/29/11	23:39
Butyl benzyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
2-Chloronaphthalene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
4-Chlorophenyl phenyl ether	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Chrysene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Dibenzo(a,h) anthracene	EPA 625	ug/L	<10.0	1.0.0	IGERAS	11/29/11	23:39
Dibutyl phthalate (Di-n-butyl phthalate)	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39

Notes:

 $^{^{\}prime}$ Report Limit is lowest concentration at which quantitation is demonstrated.



CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code:

Field Blank

HAN_TO FB

Sample Point: Sample Date:

11/16/11

				Report		Analysis	Analysis
Analyte	Method	Unit.	Result	Limit ¹	Analyst	Date	Time
3,3-Dichlorobenzidine	EPA 625	iug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Diethyl phthalate	EPA 625	ng/L	<10.0	10.0	IGERAS	11/29/11	23:39
Dimethyi Phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
2,4-Dinitrotoluene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	.23:39
2,6-Dinitrotoluene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
1,2-Diphenylhydrazine ^{2,Δ}	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Fluorene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Hexachlorobenzene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Hexachlorobutadiene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Hexachlorocyclopentadiene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Hexachloroethane	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Indeno(1,2,3-cd)pyrene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Isopharene	EPA 625	ug/L	<10.0	10.0	IGERAS	. 11/29/11	23:39
Naphthalene	EPA 625	ug/L	<u> </u>	10.0	IGERAS	11/29/11	23:39
Nitrobenzene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
N-Nitrosodi-n-propyl amine	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
N-Nitrosodimethylamine	EPA 625	ug/L	~ <1(),()	10.0	IGERAS	11/29/11	23:39
N-Nitrosodiphenylamine ³	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Phenanthrene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
Pyrene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/29/11	23:39
1,2,4 Trichlorobenzene	EPA 625	ug/L	<10.0	10,0	IGERAS	11/29/11	- 23:39

Notes:

Authonization: Roll Camely
Lab Manager 7, QA Manager

Date: 12/5/11

Report Limit is lowest concentration at which quantitation is demonstrated.

² 1.2-Diphenylhydrazine gets converted to Azobenzene in the extraction process.

³ N-Nitrosodiphenylamine decomposes in the injection port to Diphenylamine,

A Parameter is not included in HRSD VELAP scope of accreditation.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code:

HAN_TO

Sample Point: Sample Date: FNE 11/16/11

S 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
			ort	Analysis	Analysis
Analyte	Method Unit	Result Lin	nit ¹ Analyst	Date	Time
Miscellaneous Parameters					
¹ Free Cyanide ^Δ	ASTM D 4282 ug/L	<10	0 JRICKS	11/17/11	07:15
+ Oil and Grease HEM	EPA 1664A mg/L	<5.0 5	.0 RMORGA	11/18/11	07:15
* Total Dissolved Solids	SM 2540C mg/L	390 1	.0 TGAY	11/17/11	11:00
Total Phenol	LACH 10-210-00-1-B mg/L	<0.05 0.	05 JRICKS	12/01/11	10:33
- Hardness (as CaCO ₃)	SM2340B mg eq CnCO ₃ /L		20 SWILLI	12/01/11	09:14
Total Metals					
* Chromium	EPA 200.8 ug/L	<1.0	.0 KWILLI	11/28/11	11:20
Selenium	EPA 200.8 ug/L	<0.50 0.	50 KWILLI	11/28/11	11:20
<u>Dissolved Metals</u>					
 Antimony 	EPA 200.8 ug/L	[0,1>	.0 KWILLI	11/28/11	11:00
· Arsenio	EPA 200.8 ug/L	<1.0	.0 KWILLI	11/2.8/11	11:00
· Beryllium	EPA 200.8 ug/L	<0.10 0.	10 KWILLI	11/28/11	11:00
· Cadmium	EPA 200.8 ug/L	<0,05 0.	05 KWILLI	11/30/11	1.1:02
Chromium III (measured as Total Chromium)	ng/L	<1.0 1	.0 KWILLI	11/28/11	41:20
Chromium VI (measured as Total Chromium)	ng/L	<1.0	.0 KWILLI	11/28/11	11:20
* Copper	EPA 200.8 ug/L	1.43 0,	50 KWILLI	11/28/11	11:00
· Lead	EPA 200.8 ug/L	<0.10 0.	10 KWILLI	11/30/11	11:02
Mercury	EPA 245.1	<0.10 0.	10 SLABOC	11/30/11	09:17
 Nickel 	EPA 200.8 ug/L	1.26 0	50 KWILLI	11/28/11	11:00
· Silver	EPA 200.8 ug/L	<0.10 0.	10 KWILLI	11/28/11	11:00
· Thallium	EPA 200.8 ug/L	<0.10	10 KWILLI	11/30/11	11:02
/ Zinc	EPA 200,8 ug/L	37.5	Ó KWILLI	11/30/11	. 11:02

Notes:

 $^{^{\}dagger}$ Report Limit is lowest concentration at which quantitation is demonstrated.

⁴Parameter is not included in HRSD VELAP scope of accreditation.



CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code: Sample Point:

HAN_TO FNE

	2 1 1 12						
Sample Date:	11/16/11						
		?		Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit	Analyst	Date	Time
Volatile Organics		- Dayed - Control of the United States					·····
Acrolein	EPA 624	ug/L	<50.0	50.0	SLOPEZ	11/18/11	11:52
' Acrylonitrile	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
Benzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
* Bromoform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
Carbon Tetrachloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
· Chlorobenzene (Monochlorobenzene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
* Chlorodibromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
Chloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
2-Chloro-ethylvinyl Ether	EPA 624	ug/L	<10.0	10,0	SLOPEZ	11/18/11	18:47
' Chloroform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
· Dichlorobromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
1,2 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
1.3 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
1,4 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
1,1-Dichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
• 1,2-Dichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
 1,1-Dichloroethylene 	EPA 624	ug/L	<1.0,0	10.0	SLOPEZ	11/18/11-	18:47
- 1,2-trans-Dichloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
- 1,2-Dichloropropane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
1,3 Dichloropropylene (1,3-Dichloropropene) ²	EPA 624	ug/L	<20.0	20.0	SLOPEZ	11/18/11	18:47
* Ethylbenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
· Methyl Bromide	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
· Methyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
* Methylene Chloride (Dichloromethane)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
* 1,1,2,2-Tetrachloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
Tetrachloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
· Toluene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
- 1,1,1-Trichloroethane	EPA 624	ug/L	<10.0	-10.0	SLOPEZ	11/18/11	18:47
1,1,2-Trichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
- Trichloroethylene (Trichloroethene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	11/18/11	18:47
Vinyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	. 11/18/11 .	18:47

 $[\]frac{\textbf{Notes:}}{I} \\ \textit{Report Limit is lowest concentration at which quantitation is demonstrated.}$

 $^{^2}$ 1,3-Dichloropropylene is the total of cis-1,3-Dichloropropylene and trans-1,3-Dichloropropylene.





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code:

Final Effluent

Sample Point: Sample Date:

HAN_TO FNE 11/16/11

				30	· · · · · · · · · · · · · · · · · · ·		······································
				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Semi-Volatile Organics-Acid Extractables							Amm
- p-Chloro-m-cresol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
2-Chlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
- 2,4 Dichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
· 2,4 Dimethylphenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
4,6-Dinitro-o-cresol (2-Methyl-4,6-dinitrophenol)	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/[1	00:12
2,4-Dinitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
2-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
· 4-Nitrophenol	EPA 625	ug/L	<10.0	.10.0	IGERAS	11/30/11	-00:12
Pentachlorophenol	EPA 625	ng/L	<10.0	10.0	IGERAS	11/30/11	00:12
Phenol	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
- 2,4,6 Triehlorophenol	EPA 625	ug/L	<10.0	10:0	IGERAS -	11/30/11	00:12
Semi-Volatile Organics - Base Neutral Extractables							
* Acenaphthene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
. Acenapthylene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Anthracene	EPA 625	ug/L	<10,0	10.0	IGERAS	11/30/11	00:12
- Benzidine ²	EPA 625	ug/L	<10.0	10.0	IGERAS	. 11/30/11	00:12

. Acenapthylene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Anthracene	EPA 625	ug/L	<10,0	10.0	IGERAS	11/30/11	00:12
- Benzidine ²	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
· Benzo(a)anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Benzo(a)pyrene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Benzo(b)fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
- Benzo(k)fluoranthene	EPA 625	ug/L	<10.0	10,0	IGERAS	11/30/11	00:12
- Benzo(GHI)Perylene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Bis-(2-chloroethyl)-Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Bis-(2-Chloroethoxy) Methane	EPA 625	ug/L	<10.0	10.0	IGERAS	1.1/30/11	00:12
- Bis-2-(Chloroisopropyl) Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
 Bis-2-ethyl hexyl phthalate (Di-2-Ethylhexyl Phthlate) 	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
* 4-Bromophenyl Phenyl Ether	EPA-625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
 Butyl benzyl phthalate 	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
2-Chloronaphthalene	EPA 625	. เเลิ/โ	<10.0	10.0	IGERAS	11/30/11	00:12
 4-Chlorophenyl phenyl ether 	EPA 625	ug/L	<1.0.0	. 10.0	IGERAS	11/30/11	00:12
- Chrysene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
· Dibenzo(a,h) anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
 Dibutyl phthalate (Di-n-butyl phthalate) 	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
∼ Di-n-octyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12

The recoveries in the Matrix Spike Duplicate and Laboratory Control Sample were within acceptable limits.

Notes:

Report Limit is lowest concentration at which quantitation is demonstrated.

² Low recovery in the Matrix Spike due to possible matrix interference





CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code: Sample Point:

HAN_TO FNE

Sample Point: Sample Date:

11/16/11

	 	 ~~~~					
			,	Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
3,3-Dichlorobenzidine	EPA 625	 ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
· Diethyl phthalate	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	11/30/11	00:12
- Dimethyl Phthalate	EPA 625	ug/L	<1(),()	10.0	IGERAS	11/30/11	00:12
2,4-Dinitrotoluene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
² 2,6-Dinitrotoluene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
<ul> <li>1,2-Diphenylhydrazine^{2.∆}</li> </ul>	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Fluoranthene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
- Fluorene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	11/30/11	00:12
<ul> <li>Hexachlorobenzene</li> </ul>	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Hexachlorobutadiene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	11/30/11	00:12
<ul> <li>Hexachlorocyclopentadiene</li> </ul>	EPA 625	ng/L	<10.0	10.0	IGERAS	11/30/11	00:12
* Hexachloroethane	EPA 625	ug/L	<10.0	. 10.0	<b>IGERAS</b>	11/30/11	00:12
/ Indeno(1,2,3-cd)pyrene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	11/30/11	00:12
- Isophorone	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Naphthalene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
* Nitrobenzene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
N-Nitrosodi-n-propyl amine	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
<ul> <li>N-Nitrosodimethylamine</li> </ul>	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	0.0:12
<ul> <li>N-Nitrosodiphenylamine³</li> </ul>	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Phenanthrene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12
Pyrene	EPA 625	ug/L	<10.0	10.0	IGERAS	- 11/30/11	00:12
1,2,4 Trichlorobenzene	EPA 625	ug/L	<10.0	10.0	IGERAS	11/30/11	00:12

## Notes:

Authorization: Rolen Pours OV Lab Manager / QA Manager

Date: 12/5/11

HAN_TO FNE 111611 - Page 4

Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,2-Diphenylhydrazine gets converted to Azobenzene in the extraction process.

³ N-Nitrosodiphenylamine decomposes in the injection port to Diphenylamine.

⁴ Parameter is not included in VELAP scope of accreditation.



# CENTRAL ENVIRONMENTAL LABORATORY QUALITY ASSURANCE REPORT

Level

Hanover County - Totopotomoy WWTP Project:

HAN TO Project Code:

FB; FNE

1 2/7 1/2 1 Sample Point: Sample Date:

Sample Date:													
Analytical Run Information	Slb	As	Be	5	Ċ	Ō	2	jouwest Journal Partie	7	Se	.≰. 00	econom Forenci	Zn
Method	200.8	200.8	200.8	200.8	200.8	200.8	200.8	245.1		200.8		200.8	200.8
Units	ng/L	Holl.	ng/L	7/Sn	ng/L	T/SII	7/211	ug/L	1/8n	ng/L	100	ug/L	1/31
Limit of Detection (LOD)	0.22	90.0	0.01	0.050	0.04	0.00	0.01	0.03	0.08	0.12	0.05	0.03	0.24
Limit of Quantitation (LC ¹ .))	0.1	1.00	0.10	0.100	1.0	0.50	0.10	0.10	0.50	0.50	0.10	0.10	0.1
Method Blank (MB) <0.22	<0.22	<0.06	<0.01	<0.05	<0.04	60.0>	<0.01	<0.03	<0.08	<0.12	<0.05	<0.03	<0.24
	Slb	As	Be	PO	MINISTER PETERSON WINDOWN STREET STRE	Cu	Pb	F. G.	Zi	THE PARTY OF THE P	Ag	Ę	Zs
Sample ID: HAN_TO FUE			A color processors and processors an	THE THE PROPERTY OF THE PROPER	ZANDACHUNGONISTICONOCIANISMACINIS	AND CALLED STREET, AND CALLED ST	TOTAL BY SENDENBERGERS BROWN SELECTION SHOWS	AND		Management Systems in Joyce and Control of C		ALICHAL CHICHACLANACANA CHICAGANA CHICAGANA	residentifications existing contractions and a second
Matrix Spike Conc.	2.0	5.0	.—	1.0		5.0	1.0	1.0	1.0		1.0	1.0	40.0
MS Percent Recovery	100%	102%	94%	92%		91%	%66	103%	%88		95%	%66	82%
MSD Percent Recovery	%16	101%	95%	94%		93%	%66	104%	%16		95%	%66	85%
MS/MSD RPD	(3	—.	E.	-		7	$\nabla$		7		i. Co	√	
TOTAL NECESIAS	X DECEMBER OF THE PROPERTY OF	CONTRACTOR DATABASE CONTRACTOR CO	OMNOSTINI TERPOSTICINA ESCANDA	STATEMENT OF THE PROPERTY OF THE STATEMENT OF THE STATEME	Cr.	CONTRACTOR TO THE RESIDENCE OF THE PERSON OF			and constructions in particular and the fine states	and and recommendate the contract and contra	od og graden de same de same de la desta de la desta desta de la desta de la desta de la desta de la desta desta de la desta della d	ACS ACCRECATION OF A STREET OF	
Sample D: HAN TOP OF				ANNA CONTROL C	ACLED A SECURITION OF A SEC	TOTAL STREET,	MACHANIAN MANAGANAN AND AND AND AND AND AND AND AND AND	THE RESERVE THE PROPERTY OF THE PARTY OF THE	CONTRACTOR OF THE PROPERTY OF	CONTRACTOR DESCRIPTION OF THE PROPERTY OF THE		ROMARON SELECTION OF THE SELECTION OF TH	( And the second possible of the second

MSD Percent Recovery MS Percent Recovery MS - Matrix Spike MS/MSD RPD

Matrix Spike Conc.

86%

102% %86

0' 88%

MSD - Matrix Spike Duplicate

RPD - Relative Percent D. Terence

*Report Limit is lowest concentration at which quantitation is demonstrated. Values below Report Limit should not be used for compliance determinations due to a high degree of uncertainty.

Validated By: Chryski.

Date:

			CENTR	AL ENVIRONMENT. 1432 AIR RAIL A VIRGINIA BEACH,		AL LABORATI VENUE VA 23455	ORY				CHAIN OF CUSTODY	custob						
Cleaning wastewat	Cleaning Wastervator or my day for a better Bay,	er Böy.		TEL:	TEL: 757-460-4214 FAX: 757-460-6586	¥.8 8	Sec	Section of many decomposition of the section of	de la company de	ANAL	YSES REC	VESTED,	ANALYSES REQUESTED, CGN & NUMBER OF CONTAINERS	MBER OF	CONTAIN	ERS		
PROJECT NAME/CUDE:Hanover CountyTotopotomoy	CODE:Hanov	ver County_T	^otapatomoy_				Amaning aggregate and distribution of an angle of the second	ר איבעירים (פ)	(33) aletoM bov	(f) abiliod bevios	(8 oroh)	(3 ofot).	Vol Organias (35)				Project in Lims? Yes	Ums? No
	HRSD Use Only	se Only				Circle One	Circle	ATOT	গ০হহাত্র	zić izoT		auminianituhtee		y-ministration = 1			HRSD Use Only	e Only
CUSTOMER SAMPLE ID	PROJECT CODE	SAMPLE	DATE	TIME	SAMPLED BY	MATRIX	SAMPLE										Presv'd Checked	CONT.
	HAN TO	fВ	11/16/2011		JR	T	0	74	<u>z</u>			2	7				\	<u> </u>
	HAN TO	FB FB	11/16/2011	080	JR	ľ	0				ž						7	3
	HAN_TO	FNE	11/16/2011	2=	æ	٦	ပ	<u>}</u>	۲	ž			, ,	>			>	0
	HAN TO	FNE	11/16/2011	1050	JR.	٦	9			-		2					7	B
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Refinquished by I Signature	ign ature	mondage	ならなり		Date/Time	1116/111	2 150X	Whei	Where required,		lg, Metals (	pH<2 - HN	*Hg, Metals (pH<2 - HNO3) (Clean metals check in section)	metats che	ck in section	on)		
Received by / Signature	attire		Sal Our	١	Date/Time 1/1/e/	1116116	3000	submitte	submitted samples were		1&G (pH<2	-HCI, chex	*O&G (pH<2 - HCl, check in section) & store $\leq 8$ °C	1) & slore <	2,8			
Relinquished by / Signature	Ignature	1			Date/Time	,	-	transpo	transported in coolors	ANNOUNCE !	¥ (pH>12 -	NaOH) &	CN (pH>12 - NaOH) & store ≤ 6 °C					
Received by / Signature	ature				Date/Time			mainta	maintaingd at < 6 °C.	-	uffide (pH>	-9 - NaOH+	*Sulfide (pH>9 - NaOH+ZnAc) & store < 6 °C	ore ≤ 6 °C				
Relinquished by / Signature	igr sture				<b>Date/Time</b>			>	72	4	ficro (Na ₃ S	203 + EDT.	*Micro (Na ₃ S ₂ O ₃ + EDTA) & store < 10	: 1 <b>0</b> °C				
Received by / Signature	atore				Date/Time			501		)   (c)	OD, NUT,	Phenols (p	*COD, NUT, Phenols (pH<2 - H ₂ SO ₄ ) & store ≤ 6 °C	J,) & store	2 6 °C			
Relinquished by / Signature	lgrature				Date/Time			, a	之一	44	OC (pH<2	- H ₃ PO ₄ ) &	*TOC (pH<2 - $H_3PO_4$ ) & store $\leq 6$ °C		red rich manageral description and all the Common	And displacement of participations for	-	
Received by / Signature					<b>Date/Time</b>			Ĭ	1	<u>a</u>	OD, TSS,	TVSS, Turl	*BOD, TSS, TVSS, Turbidlly, Surfactant, Sulfate store < 6	ctant, Sulfa	ite store < l	2, 9		
									Water Marie	<b>₹</b>	UT Non Ak	oldified, Co.	*NUT Non Acidified, Conductivity, Organics store < 6 °C	Organics st	Ore < 6 °C			
Ali sampio(s) mot proper *proservation requirements.	proper *preser	vation requi	rements,		Yes	7	No	~~	Int AZZ	A と   と   と   と   と   と   と   と   と	(VI) (pH	9.3 - 9.7 - (	NH,)2SO4)	s store ≤ 6	್ಕ್ರ	-	DELETE STATE	
	**************************************	The state of the s	Canada and Calabath Control of the C	Chefficaliffs a delicholoridantilat dak			hardeler mannent broken metarepear		>							Andrew Conference Conf		
Sample Type: C=Composite, G=Grab	tomposite, G=€	Srab		Matrix: L=	w.	= Solid		CGN: Cor	CGN: Container Group Number	on Numbe	<u>بر</u>							

Sample Type: C=Composite, G=Grab Matrix: L= Liquid , S = Solid C
NOTE: ALL APPLICABLE INFORMATION MUST BE COMPLETED PRIOR TO ACCEPTANCE.

			CENTR	AL ENVIRC 1432 All VIRGINIA	CENTRAL ENVIRONMENTAL LABORATORY 1432 AIR RAIL AVENUE VIRGINIA BEACH, VA 23455	LABORAT NUE 23455	ORY			CHAIN	CHAIN OF CUSTODY					an and a contract to the state of the state	
Cleaning wastewaite every day for a better Bay,	Cleaning wastewaisr every day for a better 8ay,	er Bay.		TEL: FAX:	TEL: 757-460-4214 FAX: 757-460-6586	4	Z Chammaletváslejva	ggaardaardaardaardaardaardaardaardaardaa	ANA	LYSES R	ANALYSES REQUESTED, CGN & NUMBER OF CONTAINERS	CGN & N	UMBER	OF CONTA	INERS		
PROJECT NAME/:ODE:Hanover County_Totopotomoy_	CODE:Hano	ver County_T	fotopotomoy				3	(\$4) shink()	{384} easns	(c) lons/9 ls					Projec	Project in Lims?	ns? No
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CUSTOMER SAMPLE ID	PROJECT CODE	SAMPLE	DATE	TIME	SAMPLED BY	MATRIX	SAMPLE								Presv'd Checked		COUNT.
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COMMENTS:													For Tem	For Ground Water Use Only Temp. Blank 1:- 'C Temp. Blank 2 - 'C	ater Use Only	<b>à</b> , ,	
			)					Temp.	Temp. Requirement	nent	etroscado concentração altrapação de la concentra de la concen	AND CONTRACTOR OF THE PROPERTY	*Prest	*Preservatives			
Relinquished by / Signature	ignature MM	MALLY	oth S		Date/Time	) Idall	89516	Whei	Where required,		*Hg, Metals (pH<2 - HNO3) (Clean metals check in section)	H<2 - HN(	33) (Clea	n metals ch	eck in secl	ion)	
Received by / Signature	ature	Maras	Joan	-	Date/Time	11611	(2) (STO4	submiffe	submitted samples were	iconomissi.	*O&G (pH<2 - HCl, check in section) & store < 6 °C	HCI, chec	* in secti	on) & store	2°8>		
Relinquished by I Signature	ignature ()		-		Date/Time		1	transpo	fransported in coolers	baseascan A	CN' (pH>12 - NaOH) & store $\leq$ 6 °C	VaOH) & s	store ≤ 6 '	ာ့			
Received by / Signature	ıfure				Date/Time			mainta	maintained at≤6 °C.	-	*Sulfide (pH>9 - NaOH+ZnAc) & store < 6 °C	- NaOH+	ZnAc) & s	store < 6 °C			
Relinquished by / Signature	ignature	e distribute de la companie de la co			Date/Time			> 3	Ma		"Micro (Na $_3$ S $_2$ O $_3$ + EDTA) & store < 10 $^{\circ}$ C	O ₃ + EDT/	4)& store	< 10 °C			
Received by / Signature	ature			-	Date/Time			n D	) ²		*COD, NUT, Phenols (pH<2 - $H_2SO_4$ ) & store $\leq$ 6 °C	henols (pl	H<2 - H ₂ 5	5O ₄ ) & store	J, 9 ≥ €		
Refinquished by / Signature	Ignature				Date/Time			***************************************	t	A T	* $TOC$ (pH<2 - $H_3PO_4$ ) & store $\leq 6$ °C	H ₃ PO ₄ ) &	store ≤ 6	್ಥ			
Received by / Sign ature	ature				Date/Time						*BOD, TSS, TVSS, Turbidily, Surfactant, Sulfate store ≤ 6	VSS, Turb	idity, Sur	factant, Sul	fate store <	၁, မ ့	
											*NUT Non Acidified, Conductivity, Organics store < 6 °C	dified, Cor	nductivity,	, Organics s	otore ≤ 6°C		
All sample(s) mel proper toreservation remitraments	oroner *prese	rvation remit	ramonta		Yes	7	Ş			10000	Cr (VI) (pH 9.	3-9.7-(1	VH4)2SO4	) & store ≤	9 , C	Acceptance and consequence	
						A COLUMN A CONTRACTOR A COLUMN	TAX mass transmiss to transmiss		$\Leftrightarrow$		o de ver d'obb de la desta de la desta de ver de ve	CORPORATION STATES AND	Cossing (Demonstrate)	- Commission of	No. and co. Collector and Street Collectors and Col	TITOTA THA WATER CONTROL	and the same of th
Sample Type: C=Composite, G=Grab	omposite, G=C	Srab	ENGINEER PROPERTY OF THE PROPE	Matrix: L=	Matrix: L= Liquid, S = Solid	Solid	) В при	CGN: Container Group Number	Mainer Gr	aup Numb	18	permits tearns throber parameters through	Marie and the survey of the su	reference productive descent of the	de consequence and a second desirement of the	and the second second second	Printer Comments

NOTE: ALL APPI CABLE INFORMATION MUST BE COMPLETED PRIOR TO ACCEPTANCE.

# FIFLD RECORD (S)

# Totopotomoy Treatment Plant Field Sheet

# Information To Be Checked Before The Start of Each Sampling Event

1.	Does the Final Effluent have any abnormal characteristics (odor, color)? Y/N
	If the answer to the above questions is NO proceed to the next section. Please contact a supervisor if the answer is YES.
2.	A. Average Plant flow for the last five days: 2.2060  B. Expected Plant flow for the next 24 hours: 2.2060
3.	List the last three days of Final Effluent TSS with the most recent last: 2.0 1113, 2.3 114
4.	Contact Closure: (Expected Flow / 1000 / 30) Pulses per sample.
5.	Samplers for Final Effluent & FB calibrated at 500 ml per sample. (Desired volume/30)  Final Effluent Start Time / Date: 1119 1111.5/11  FB Start Time / Date: 1119 1115/11
Th	e above information has been completed prior to the beginning of the sampling event. Int.
	mpling personnel: J. Reitz, A. Williamson
	Information Check At The End Of The Sampling Event
1.	Are all lids, compression assemblies and caps secure? ()/N
2.	Final Effluent TSS for the sampling period: 2.1 mall 11/14
3.	Plant flow for the sampling period 2.1MGD 11/15, 3.1MGD 11/14
4.	Number of samples collected in each Final Effluent & FB composite container:  Final Effluent: 35  FB: 35  TBT: \(\mathrm{N}/A\)
5.	Final Effluent & FB composite end time and date:  Final Effluent End Time / Date: (\\G\)
6.	Is Temperature in collection container at the end of sampling <6° C? (T) N
7.	Are sample volumes equal in all composite containers (Y) N
8.	Grab times and dates:       FB VOA: 1020 11 1011
Sar	npling personnel: J. Reitz, A. Williamson.
	Please contact project lead with any problems incurred during the sampling event.
Re	cord any other information that could affect sample results:

# HANOVER COUNTY, VIRGINIA PURCHASE REQUISITION

VENDOR MAILING ADDRESS

TeamViewer Inc.

(RECORD TELEPHONE QUOTES ON BACK)

BILL

TO: Hanover County Public Utilities

	REQUISITION	NUMBER
	Dept.	PURCH.
į		

3001 Suite		ky Point	Drive East		P.O. Box 470 Hanover, VA	23060			
	pa, FL 3360	)7			Hallovel, VA	23009			
Kimberl	y Magee								
magee@	teamviewer.	<u>com</u>			SHIP				
Fax 1 855 352 7610 Phone 1 800 951 4573 (tol			II-free)		Hanover County DPU 9015 Pole Green Park Lane Mechanicsville Va. 23116 Attn: Chuck Smith				
Phone #			Fax#:	VENDOR #:	San Commence				
DATE RE	QUESTED		DATE REQUIRED	PURCHASE ORDER NO.	This requisition	will be retu	rned		
	1/3/12	ZNJEZNOS SOSTONOS (SZNIKO S NING LEDVINE VOLUME)	1/17/12	4791312	if not properly	signed and coded.			
ITEM 1	QTY.	UNIT	DESCRIPTION   TU310-312.57	Software Upgrade from premium	umpu immi um printerente yezh en contentententen ez eusk arkezek ankezek met en eusken ez ez en eusker en eusk	UNIT PRICE	TOTAL 2.069.0		
			3 users on separate m Used at TWWTP, DWT Budget Code 4-400-44	allow for 3 simultaneous users on	enter				
			Per Email Quote Q97808  Julian "Grey" Gonzalez  Contact Chuck Smith	8-ZGKM					

Item	R/E	Fund	Dept	Obj	Cost	Cost Prog		AMOUNT
	·				=			
					1 1			

804 - 365 - 673

I certify that the items specified above are necessry for use by this department and funds are available in the budget codes given.

Freight Total

Chuck Smith	 	 
Signature:		

2,069.00



JUL 21 2011



1432 Air Rail Avenue, Virginia Beach, VA 23455-3002 • 757.460.4205 • Fax: 757.460.6586 • www.hrsd.com

# 06/22/11 - Hanover County - Totopotomoy Permit Application

# This analytical report contains 17 pages

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cc: Regina Andrepont Cuthbert

racuthbert@co.hanover.va.us

Date Sent:

07/18/11

HRSD CEL, Central Environmental Laboratory is VELAP/NELAC accredited by DCLS, the Division of Consolidated Laboratory Services.

VA Laboratory ID#: 460011 Effective Date: June 15, 2011 Expiration Date: June 14, 2012 Certificate # 911

Analytical test results meet all requirements of VELAP/NELAC unless otherwise noted under the analysis.

Test results relate only to the sample tested. Clients should be aware that a critical step in chemical or microbiological analysis is the collection of the sample.

This report may not be reproduced, except in full, without written approval from HRSD.

If you have any questions concerning this report, please do not hesitate to call Danny Barker, TSD Environmental Scientist at (757) 460-4247, Robin Parnell, CEL Laboratory Manager at (757) 460-4203 or Cindi Reno, CEL Administrative Assistant at (757) 460-4205.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN_TO

Sample Point:

FB

Sample Date:

06/22/11

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Total Metals							
Chromium	EPA 200.8	ug/L	<1.0	1.0	KWILLI	06/28/11	11:22
Selenium	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:22
Dissolved Metals							
Antimony	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:16
Arsenic	EPA 200.8	ug/L	<1.0	1.0	KWILLI	06/28/11	11:16
Beryllium	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	06/28/11	11:16
Cadmium	EPA 200.8	ug/L	< 0.05	0.05	KWILLI	06/28/11	11:16
Chromium III (measured as Total Chromium)		ug/L	<1.0	1.0	KWILLI	06/28/11	11:22
Chromium VI (measured as Total Chromium)		ug/L	<1.0	1.0	KWILLI	06/28/11	11:22
Copper	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:16
Lead	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	06/28/11	11:16
Mercury	EPA 245.1	ug/L	< 0.10	0.10	SWILLI	06/29/11	09:48
Nickel	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:16
Selenium	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:16
Silver	EPA 200.8	ug/L	< 0.05	0.05	KWILLI	06/28/11	11:16
Thallium	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	06/28/11	11:16
Zinc	EPA 200.8	ug/L	1.0	1.0	KWILLI	06/28/11	11:16

 $[\]frac{\textbf{Notes:}}{^{I}}$  Report Limit is lowest concentration at which quantitation is demonstrated.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN TO FB

Sample Point: Sample Date:

06/22/11

Sample Date:	00/22/11						
				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Volatile Organics	:						
Acrolein	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	12:43
Acrylonitrile	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Benzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Bromoform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Carbon Tetrachloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Chlorobenzene (Monochlorobenzene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Chlorodibromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Chloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
2-Chloro-ethylvinyl Ether	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Chloroform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Dichlorobromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,2 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,3 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,4 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,1-Dichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,2-Dichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,1-Dichloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,2-trans-Dichloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,2-Dichloropropane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,3 Dichloropropylene (1,3-Dichloropropene) ²	EPA 624	ug/L	<20.0	20.0	SLOPEZ	06/24/11	03:12
Ethylbenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Methyl Bromide	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Methyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Methylene Chloride (Dichloromethane)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,1,2,2-Tetrachloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03.12
Tetrachloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Toluene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03.12
1,1,1-Trichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
1,1,2-Trichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Trichloroethylene (Trichloroethene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12
Vinyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	03:12

 $[\]frac{\textbf{Notes:}}{^{I}}$  Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,3-Dichloropropylene is the total of cis-1,3-Dichloropropylene and trans-1,3-Dichloropropylene.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN_TO

Sample Point:

FB

DORAL DIV X OLIVE	× 20						
Sample Date:	06/22/11						
				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Semi-Volatile Organics-Acid Extractables	Tay 1 Mag						
p-Chloro-m-cresol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2-Chlorophenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2,4 Dichlorophenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2,4 Dimethylphenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
4,6-Dinitro-o-cresol (2-Methyl-4,6-dinitrophenol)	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2,4-Dinitrophenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2-Nitrophenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
4-Nitrophenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Nonylphenol ^Δ	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Pentachlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Phenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
2,4,6 Trichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Semi-Volatile Organics - Base Neutral Extractables					10-14-0		70.50
Acenaphthene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Acenapthylene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Benzidine	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Benzo(a)anthracene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Benzo(a)pyrene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Benzo(b)fluoranthene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Benzo(k)fluoranthene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Benzo(GHI)Perylene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Bis-(2-chloroethyl)-Ether	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Bis-(2-Chloroethoxy) Methane	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Bis-2-(Chloroisopropyl) Ether	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Bis-2-ethyl hexyl phthalate (Di-2-Ethylhexyl Phthlate)	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
4-Bromophenyl Phenyl Ether	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Butyl benzyl phthalate	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2-Chloronaphthalene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
4-Chlorophenyl phenyl ether	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Chrysene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Dibenzo(a,h) anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Dibutyl phthalate (Di-n-butyl phthalate)	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Di-n-octyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
<b>₹ 1</b>	<del></del>						

¹ Report Limit is lowest concentration at which quantitation is demonstrated.

⁴ Parameter is not included in VELAP scope of accreditation.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Field Blank

Project Code:

HAN TO

Sample Point:

FB

Sample Date:

06/22/11

			Report		Analysis	Analysis
Analyte	Method Unit	Result	Limit ¹	Analyst	Date	Time
3,3-Dichlorobenzidine	EPA 625 ug/L	<10.0	10.0	IGERAS	06/30/11	18:56
Diethyl phthalate	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Dimethyl Phthalate	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2,4-Dinitrotoluene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
2,6-Dinitrotoluene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
1,2-Diphenylhydrazine ^{2,∆}	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Fluoranthene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Fluorene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Hexachlorobenzene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Hexachlorobutadiene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Hexachlorocyclopentadiene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Hexachloroethane	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Indeno(1,2,3-cd)pyrene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Isophorone	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Naphthalene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Nitrobenzene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
N-Nitrosodi-n-propyl amine	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
N-Nitrosodimethylamine	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
N-Nitrosodiphenylamine ³	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Phenanthrene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
Pyrene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56
1,2,4 Trichlorobenzene	EPA 625 ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	18:56

## Notes:

¹ Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,2-Diphenylhydrazine gets converted to Azobenzene in the extraction process.

 $^{^{\}rm 3}$  N-Nitrosodiphenylamine decomposes in the injection port to Diphenylamine.

⁴ Parameter is not included in VELAP scope of accreditation.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code:

Field Blank

HAN_TO FB

Sample Point: Sample Date:

06/22/11

Report Analysis Analysis Limit1 Analyte Method Unit Result Date Time Analyst Pesticides & PCB's Aldrin EPA 608 ug/L < 0.05 0.05 06/29/11 CCURRY 22:21 Chlordane EPA 608 ug/L < 0.20 0.20 CCURRY 06/28/11 05:39 alpha-BHC (Hexachlorocyclohexane) EPA 608 ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 beta-BHC (Hexachlorocyclohexane) **EPA 608** ug/L < 0.05 0.05 CCURRY 06/29/11 22:21 DDD **EPA 608** < 0.05 0.05 ug/L CCURRY 06/29/11 22:21 DDE EPA 608 ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 DDT EPA 608 < 0.05 ug/L 0.05 **CCURRY** 06/29/11 22:21 Dieldrin EPA 608 < 0.05 ug/L 0.05 **CCURRY** 06/29/11 22:21 Alpha-Endosulfan **EPA 608 CCURRY** ug/L < 0.05 0.05 06/29/11 22:21 Beta-Endosulfan **EPA 608** ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 Endosulfan sulfate **EPA 608** ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 Endrin **EPA 608** ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 Endrin aldehyde **EPA 608** ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 **EPA 608** Heptachlor ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 Heptachlor epoxide **EPA 608** ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 Kepone **EPA 608** < 0.10 ug/L 0.10 **CCURRY** 06/30/11 17:34 Lindane **EPA 608** ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 Methoxychlor ug/L EPA 8081B < 0.05 0.05 **CCURRY** 06/29/11 22:21 Mirex EPA 8081B ug/L < 0.05 0.05 **CCURRY** 06/29/11 22:21 PCB 1016 **EPA 608** ug/L <1.00 1.00 **CCURRY** 06/28/11 05:39 PCB 1221 EPA 608 ug/L <1.00 1.00 **CCURRY** 06/28/11 05:39 PCB 1232 ug/L EPA 608 < 1.00 1.00 **CCURRY** 06/28/11 05:39 PCB 1242 EPA 608 ug/L <1.00 1.00 **CCURRY** 06/28/11 05:39 PCB 1248 EPA 608 ug/L <1.00 1.00 **CCURRY** 06/28/11 05:39 PCB 1254 **EPA 608** ug/L <1.00 1.00 **CCURRY** 06/28/11 05:39 PCB 1260 EPA 608 <1.00 ug/L 1.00 **CCURRY** 06/28/11 05:39 PCB Total EPA 608 ug/L < 7.00 7.00 **CCURRY** 06/28/11 05:39 Toxaphene EPA 608 ug/L <5.00 5.00 **CCURRY** 06/28/11 05:39 Organophosphorous Pesticides Demeton[∆] EPA 622 ug/L < 0.10 0.10 **CCURRY** 06/28/11 15:18 Diazinon EPA 622 ug/L < 0.10 0.10 **CCURRY** 06/28/11 15:18 Guthion EPA 622 < 0.10 ug/L 0.10 CCURRY 06/28/11 15:18 Malathion^Δ EPA 622 ug/L < 0.10 0.10 **CCURRY** 06/28/11 15:18 Chlorpyrifos (Dursban) EPA 622 < 0.10 **CCURRY** ug/L 0.10 06/28/11 15:18 Parathion^Δ EPA 622 < 0.10 0.10 **CCURRY** 06/28/11 ug/L 15:18 Notes:

Authorization: Rolin Parne Ol Lab Manager) QA Manager

Date: 7/18/11

¹ Report Limit is lowest concentration at which quantitation is demonstrated.

² Parameters are not included in HRSD CEL VELAP scope of accreditation.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code:

HAN_TO

Sample Point: Sample Date: FNE 06/22/11

Sample Date:	 05/22/11						
				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Miscellaneous Parameters				<u>-</u>			
Free Cyanide	ASTM D 4282	ug/L	<10	10	RMORGA	06/23/11	07:15
Ammonia-N	EPA 350.1	mg/L	< 0.20	0.20	GBROWN	07/08/11	10:03
Chloride	SM 4500-CI-B	mg	47	1	JGETTI	06/23/11	09:06
Sulfide (Hydrogen sulfide)	ASTM D 4658-03	mg/L	< 0.1	0.1	RMORGA	06/27/11	07:15
Oil and Grease HEM	EPA 1664A	mg/L	< 5.0	5.0	RMORGA	06/28/11	07:49
Total Dissolved Solids	SM 2540C	mg/L	348	1	RCASTR	06/22/11	16:40
Total Phenol	EPA 420.4	mg/L	< 0.05	0.05	JRICKS	06/30/11	13:53
- Hardness (as CaCO ₃ )	SM2340B	mg eq	72.7	0.20	SLABOC	06/24/11	13:07
	100	CaCO ₃ /L					
Total Metals							
- Chromium	EPA 200.8	ug/L	<1.0	1.0	KWILLI	06/28/11	11:47
- Selenium	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:47
Dissolved Metals							
Antimony	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:28
- Arsenic	EPA 200.8	ug/L	<1.0	1.0	KWILLI	06/28/11	11:28
Beryllium	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	06/28/11	11:28
* Cadmium	EPA 200.8	ug/L	< 0.05	0.05	KWILLI	06/28/11	11:28
Chromium III (measured as Total Chromium)		ug/L	<1.0	1.0	KWILLI	06/28/11	11:47
Chromium VI (measured as Total Chromium)		ug/L	<1.0	1.0	KWILLI	06/28/11	11:47
Copper	EPA 200.8	ug/L	1.62	0.50	KWILLI	06/28/11	11:28
Lead	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	06/28/11	11:28
* Mercury	EPA 245.1	ug/L	< 0.10	0.10	SWILLI	06/29/11	09:51
- Nickel	EPA 200.8	ug/L	1.25	0.50	KWILLI	06/28/11	11:28
* Selenium	EPA 200.8	ug/L	< 0.50	0.50	KWILLI	06/28/11	11:28
° Silver	EPA 200.8	ug/L	< 0.05	0.05	KWILLI	06/28/11	11:28
* Thallium	EPA 200.8	ug/L	< 0.10	0.10	KWILLI	06/28/11	11:28
- Zinc	EPA 200.8	ug/L	36.0	1.0	KWILLI	06/28/11	11:28

## Notes:

Report Limit is lowest concentration at which quantitation is demonstrated.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code:

HAN TO

FNE

Sample Point: Sample Date:

06/22/11

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Volatile Organics							
Acrolein	EPA 624	ug/L	<50.0	50.0	SLOPEZ	06/24/11	12:14
Acrylonitrile	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Benzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Bromoform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Carbon Tetrachloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Chlorobenzene (Monochlorobenzene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Chlorodibromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Chloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
2-Chloro-ethylvinyl Ether	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Chloroform	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Dichlorobromomethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,2 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,3 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,4 Dichlorobenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,1-Dichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,2-Dichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,1-Dichloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,2-trans-Dichloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,2-Dichloropropane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,3 Dichloropropylene (1,3-Dichloropropene) ²	EPA 624	ug/L	<20.0	20.0	SLOPEZ	06/24/11	05:11
Ethylbenzene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Methyl Bromide	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Methyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05.11
Methylene Chloride (Dichloromethane)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,1,2,2-Tetrachloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Tetrachloroethylene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Toluene	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,1,1-Trichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
1,1,2-Trichloroethane	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Trichloroethylene (Trichloroethene)	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11
Vinyl Chloride	EPA 624	ug/L	<10.0	10.0	SLOPEZ	06/24/11	05:11

Notes:

Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,3-Dichloropropylene is the total of cis-1,3-Dichloropropylene and trans-1,3-Dichloropropylene.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID:

Final Effluent

Project Code:

HAN_TO

Sample Point:

FNE /11

~	
Sample Date:	06/22/

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Semi-Volatile Organics-Acid Extractables						·····	
p-Chloro-m-cresol	EPA 625	ug/L	<10.0	10.0	IGERAS :	06/30/11	19:29
2-Chlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
2,4 Dichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
2,4 Dimethylphenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
4,6-Dinitro-o-cresol (2-Methyl-4,6-dinitrophenol)	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
2,4-Dinitrophenol	EPA 625	· ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
2-Nitrophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
4-Nitrophenol	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Nonylphenol ^Δ	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Pentachlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Phenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
2,4,6 Trichlorophenol	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Semi-Volatile Organics - Base Neutral Extractables							17.2
Acenaphthene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Acenapthylene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Anthracene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Benzidine	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Benzo(a)anthracene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Benzo(a)pyrene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Benzo(b)fluoranthene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Benzo(k)fluoranthene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Benzo(GHI)Perylene	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Bis-(2-chloroethyl)-Ether	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Bis-(2-Chloroethoxy) Methane	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Bis-2-(Chloroisopropyl) Ether	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Bis-2-ethyl hexyl phthalate (Di-2-Ethylhexyl Phthlate)	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
4-Bromophenyl Phenyl Ether	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Butyl benzyl phthalate	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
2-Chloronaphthalene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
4-Chlorophenyl phenyl ether	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Chrysene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Dibenzo(a,h) anthracene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Dibutyl phthalate (Di-n-butyl phthalate)	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Di-n-octyl phthalate	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
		<b>-</b>			ŕ		

 $[\]frac{\textbf{Notes:}}{^{I}} \textit{Report Limit is lowest concentration at which quantitation is demonstrated.}$ 

⁴ Parameter is not included in VELAP scope of accreditation.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code: Sample Point: Final Effluent HAN TO

FNE

Sample Date: 06/22/11

Sample Date:	06/22/11						
				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
3,3-Dichlorobenzidine	EPA 625	ug/L	<10.0	10.0	IGERAS	06/30/11	19:29
Diethyl phthalate*	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Dimethyl Phthalate*	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
2,4-Dinitrotoluene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
2,6-Dinitrotoluene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
1,2-Diphenylhydrazine ^{2,∆}	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Fluoranthene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Fluorene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Hexachlorobenzene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Hexachlorobutadiene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Hexachlorocyclopentadiene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Hexachloroethane	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
indeno(1,2,3-cd)pyrene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
sophorone	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Naphthalene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Vitrobenzene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
N-Nitrosodi-n-propyl amine	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
N-Nitrosodimethylamine	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
N-Nitrosodiphenylamine ³	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Phenanthrene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
Pyrene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
1,2,4 Trichlorobenzene	EPA 625	ug/L	<10.0	10.0	<b>IGERAS</b>	06/30/11	19:29
		and the second					

# Notes:

Report Limit is lowest concentration at which quantitation is demonstrated.

² 1,2-Diphenylhydrazine gets converted to Azobenzene in the extraction process.

 $^{^3}$  N-Nitrosodiphenylamine decomposes in the injection port to Diphenylamine.

⁴ Parameter is not included in VELAP scope of accreditation.

^{*} The % recovery (69% and 66% respectively) of these analytes in the sampe matrix spike duplicate were below the acceptable limit (76-118% and 68-114% respectively) due to possible matrix effect. The % recovery of these analytes were within acceptable limits in the sample matrix spike and laboratory control sample which satisfied the method requirement.





# CENTRAL ENVIRONMENTAL LABORATORY ANALYTICAL REPORT

Project:

Sample Date:

Hanover County - Totopotomoy WWTP

Customer Sample ID: Project Code: Sample Point: Final Effluent HAN_TO

FNE 06/22/11

				Report		Analysis	Analysis
Analyte	Method	Unit	Result	Limit ¹	Analyst	Date	Time
Pesticides & PCB's							
Aldrin	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Chlordane	EPA 608	ug/L	< 0.20	0.20	CCURRY	06/28/11	06:05
alpha-BHC (Hexachlorocyclohexane)	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22;47
beta-BHC (Hexachlorocyclohexane)	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
DDD	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
DDE	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
DDT	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Dieldrin	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Alpha-Endosulfan	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Beta-Endosulfan	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Endosulfan sulfate	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Endrin	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Endrin aldehyde	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Heptachlor	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Heptachlor epoxide	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Kepone	EPA 608	ug/L	< 0.10	0.10	CCURRY	06/30/11	17:50
Lindane	EPA 608	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Methoxychlor	EPA 8081B	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
Mirex	EPA 8081B	ug/L	< 0.05	0.05	CCURRY	06/29/11	22:47
PCB 1016	EPA 608	ug/L	<1.00	1.00	CCURRY	06/28/11	06:05
PCB 1221	EPA 608	ug/L	<1.00	1.00	CCURRY	06/28/11	06:05
PCB 1232	EPA 608	ug/L	<1.00	1.00	CCURRY	06/28/11	06:05
PCB 1242	EPA 608	ug/L	<1.00	1.00	CCURRY	06/28/11	06:05
PCB 1248	EPA 608	ug/L	<1.00	1.00	CCURRY	06/28/11	06:05
PCB 1254	EPA 608	ug/L	<1.00	1.00	CCURRY	06/28/11	06:05
PCB 1260	EPA 608	ug/L	<1.00	1.00	CCURRY	06/28/11	06:05
PCB Total	EPA 608	ug/L	<7.00	7.00	CCURRY	06/28/11	06:05
Toxaphene	EPA 608	ug/L	<5.00	5.00	CCURRY	06/28/11	06:05
Organophosphorous Pesticides							
Demeton [∆]	EPA 622	ug/L	< 0.10	0.10	CCURRY	06/28/11	15:36
Diazinon	EPA 622	ug/L	< 0.10	0.10	CCURRY	06/28/11	15.36
Guthion	EPA 622	ug/L	< 0.10	0.10	CCURRY	06/28/11	15:36
Malathion [△]	EPA 622	ug/L	< 0.10	0.10	CCURRY	06/28/11	15:36
Chlorpyrifos (Dursban)	EPA 622	ug/L	< 0.10	0.10	CCURRY	06/28/11	15:36
Parathion [∆]	EPA 622	ug/L	< 0.10	0.10	CCURRY	06/28/11	15:36
Notes:							

Report Limit is lowest concentration at which quantitation is demonstrated.

Authorization: Rolin Pamell
Lab Manager QA Manager

Date: 7/18/11

⁴ Parameters are not included in HRSD CEL VELAP scope of accreditation.



# CENTRAL ENVIRONMENTAL LABORATORY QUALITY ASSURANCE REPORT



Level 1

Hanover County - Totopotomoy WWTP

Project:

HAN TO Project Code:

FB; FNE

06/22/11 Sample Point:

Sample Date:	06/22/11												
Analytical Run Information	Sb	As	Be	Cq	Ċ	Ca	Ps	He	Z	Se	Ag	<u>E</u>	Zn
Method	200.8	200.8	200.8	200.8	200.8	200.8	200.8	245.1	200.8	200.8	200.8	200.8	200.8
Units	ug/L	ng/L	ng/L	ng/L	mg/L	T/Sn	7/811	1/3n	7/Bn	IIG/J	T/Sm	T/Sn	ng/L
Limit of Detection (LOD)	0.07	0.03	0.05	0.009	0.09	0.09	0.03	0.03	0.04	0.04	0.008	0.03	0.13
Limit of Quantitation (LOQ)	0.5	1.0	0.1	0.05	1.0	0.5	0.1	0.10	0.5	0.5	0.05	0.1	0.1
Method Blank (MB)	<0.07	*0.05	<0.02	<0.009	*0.10	<0.0>	*0.09	<0.03	<0.04	<0.04	*0.011	<0.03	<0.13
Total Metals					Ċ								
Sample ID: HAN TO FNE								Particular decembration of the control of the contr		ON DESCRIPTION OF THE PROPERTY	ARCOS ER ARCOS CONTROLLES CONTROL	CANTONION DESCRIPTION DESCRIPT	
Matrix Spike Conc.					5.0								
MS Percent Recovery					102%								
MSD Percent Recovery					100%								
MS/MSD RPD					2								
Dissolved Metals	qs	As	Be	Cd		Cn	Pb	He	Z	Se	Ag		Zn
Sample ID: HAN_TO FNE													
Matrix Spike Conc.	2.0	5.0	0.5	0.5		10.0	5.0	1.0	5.0	5.0	0.5	1.0	20.0
MS Percent Recovery	103%	%66	<b>%96</b>	95%		%16	104%	103%	91%	100%	95%	105%	%68
MSD Percent Recovery	101%	101%	91%	61%		93%	100%	103%	%16	105%	%06	102%	%96
MS/MSD RPD	7	3	Š	2		7	4	7	~	Š	5	2	ε,
MS - Matrix Spike	and based and the state of the		othering control of an analysis of a second of a secon	OFFICE OF	<u> Entrancementaries (Contractions)</u>	eccumination contraction and an experimental contractions and the contraction of the cont	SONO DO PROGRAMMA SONO DE LA COMPOSITACION DEL COMPOSITACION DEL COMPOSITACION DE LA COMPOSITACION DE LA COMPOSITACION DE LA COMPOSITACION DE LA COMPOSITACION DEL COMPOSITACION DE LA COMPOSITACION DE LA COMPOSITACION DEL COMPOSITACION DE LA COMPOSITACION DEL COMPOSITACION DE LA COMPOSITACION DE LA COMPOSITACION DEL COMPOSITACION DE LA COMPOSITACION DEL COMPOSI	NGARIDPOSTECHTOS DATESTED SOOR POUT OF SECTION SEC	TOTAL TOTAL CONTRACTOR	secon neteronomicanistratera contractora c	Attentional descriptions of the second of th	ALL PARTY AND THE PROPERTY OF THE PARTY OF T	orani pura companda de la constanta de la cons

MSD - Matrix Spike Duplicate

RPD - Relative Percent Difference

*Report Limit is lowest concentration at which quantitation is demonstrated. Values below Report Limit should not be used for compliance determinations due to a high degree of uncertainty.

Validated By:

			CENTR	AL ENVIRO 1432 AL VIRGINIA	CENTRAL ENVIRONMENTAL LABO 1432 AIR RAIL AVENUE VIRGINIA BEACH, VA 2345	LABORATORY NUE . 23455	ORY				CHAIN OF CUSTODY	CUSTODY						
Cleaning wastewater every day for	Cleaning wastewater every day for a better Bay.	r Bay.		TEL: FAX:	TEL: 757-460-4214 FAX: 757-460-6586	#10	b			ANA	ANALYSES REQUESTED, CGN & NUMBER OF CONTAINERS	UESTED, (	CGN & NUI	WBER OF	CONTAIN	ERS		
PROJECT NAME/CODE:Hanover County_Totopotomoy	CODE:Hanov	er County_T	'otopotomoy_				Bestern and the service of the servi	(3) SLATEM L	(öö) zintoM bev	(8t) seiflus no	(f) splies bevies	(T) sinomi	( o oror)	( 6 0101)	68) eoinaga ( 0	Vol Organios ( N 89	Project in Lims? Yes No	n Lims? No
	HRSD Use Only	e Only	<del></del>			Circle One	Circle One	ATOT	Pissold .	gotbýH	#IIInhawane	STANCES OF STREET, STR	AOV	AOV	O leVime2		HRSD Use Only	se Only
CUSTOMER SAMPLE ID	PROJECT CODE	SAMPLE POINT	DATE		SAMPLED	MATRIX	SAMPLE										Presv'd Checked	CONT.
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COMMENTS:	* No interferences found - 1R	KEREK	ices h	Sera Sera	*										For Ground M Temp: Blank 1 Temp: Blank 9	ind Water ank 1 -	For Ground Water Use Only Temp: Blank/Little	
	Y							Temp.	Temp. Requirement	ent		AND AND COMPERCIAL CONTRACTORS	NAME OF THE PROPERTY OF THE PERSON OF THE PE	*Preservatives	tives			
Relinquished by / Signature	SignatureXVV	さるを	のなが		Date/Time (1)	27/11 6	583	Wher	Where required,	mumi	"Hg, Metals (pH<2 - HNO3) (Clean metals check in section)	H<2 - HNO	3) (Clean n	nefals che	ck in section	uc)	The state of the s	
Received by / Signature	ature (	2	Wille		Date/Time 6/	1750	553	submitted	submitted samples were	encorte	*O&G (pH<2 - HCl, check in section) & store < 6 °C	HCI, check	in section)	& store <	೨, 9			
Relinquished by / Signature	Signature	11	12		Date/Time 7	30	}	transpor	transported in coolers	(menous)	CN (pH>12 - NaOH) & store < 6 °C	NaOH) & st	ore ≤ 6 °C				-	
Received by / Signature	ature	,			Date/Time			maintail	maintained af ≤ 6 °C.		*Sulfide (pH>9 - NaOH+ZnAc) & store < 6 °C	- NaOH+Z	nAc) & stor	D, 9 > a.				
Relinquished by / Signature	Signature				Date/Time			7. 55%	1	=	Micro (Na ₃ S ₂ O ₃ + EDTA) & store < 10 °C	O ₃ + EDTA)	& store <	10 °C	Management of the second	TOTAL PROPERTY OF THE PROPERTY	NAMES DE LA CONTRACTION DE LA	
Received by / Signature	ature				Date/Time			200		<u></u>	*COD, NUT, Phenols (pH<2 - H ₂ SO₄) & store ≤ 6	henols (pH	<2 - H ₂ SO ₄	) & store <	0,9	TO COLOR OF THE PARTY OF THE PA		
Relinquished by / Signature	Signature				Date/Time			7	7	Ţ	TOC (pH<2 - H3PO4) & store < 6 °C	H ₃ PO ₄ ) & s	tore ≤ 6 °C	CONTROL OF	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	Tree ST trains and philips to several	enconnect percentagement and a second	the same and
Received by / Signature	ature				Date/Time		ANGERORIA			r T	*BOD, TSS, TVSS, Turbidity, Surfactant, Sulfate store < 6 °C	VSS, Turbic	Jity, Surfact	ant, Sulfat	le store < (	3 °C		
										4	*NUT Non Acidified, Conductivity, Organics store < 6 °C	difled, Conc	fuctivity, Or	ganics sto	ارو < 9 °C			
					-	1			10.	, C	Cr (VI) (pH 9.3 - 9.7	3 - 9.7 - (N	- (NH4) ₂ SO4) & store ≤ 6 ⁰ C	store ≤ 6	ွ			
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Sample Type: C=Composite, G=Grab	Composite, G=Gr	ab		Matrix: L=	Matrix: L= Liquid, S = Solid	olid	J	CGN: Container Group Number	tainer Grot	n Numbe	<b>1</b> _							

Sample 1998: C=Composite, G=Grad
NOTE: ALL APPLICABLE INFORMATION MUST BE COMPLETED PRIOR TO ACCEPTANCE.

			CENTR	AL ENVIR	CENTRAL ENVIRONMENTAL LABORATORY	ABORAT	ORY			CHAIN	CHAIN OF CUSTODY	λQ					
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Cleaning wastewa	Cleaning wastewater every day for a better Bay.	er Bay.		TEL: FAX:	TEL: 757-460-4214 FAX: 757-460-6586	4 Õ			ANA	LYSES R	EQUESTE	D, CGN &	NUMBER	ANALYSES REQUESTED, CGN & NUMBER OF CONTAINERS	AINERS	ENGLAND OF STREET	
PROJECT NAME/CODE:	i i	Hanover County_Totopotomoy	l'otopotomo <u>y</u>	bet delineration of the second			allane describe en en estatue estatue de entre estatue estatue en estatue en estatue en estatue en estatue est	(34) abinaya	(088) 92591	(5) lonadd i			processes constructions and the construction of the Construction o		Proje Yes	Project in Lims?	S? No
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Received by / Signature	) ature	0	Cals The	The same of the sa	Date/Time	100/1	4.786	submitte	submitted samples were	- Charleston Con-	0&G (pH<	*O&G (pH<2 - HCl, check in section)	eck in seci	ion) & store < 6	2 8 °C		
Relinquished by / Signature	Signature				Date/Time	1 1		transpo	fransported in coolers	omeselle.	N. (pH>12	CN (pH>12 - NaOH) & store < 6 °C	k store < 6		Opposite entra transportation and a second contraction of the second c	open and the second of the second	The second
Received by / Signature	nature		,		Date/Time	***************************************		mama	maintained at 5 ° °.		Sulfide (pł	1>9 - NaOF	I+ZnAc) &	*Sulfide (pH>9 - NaOH+ZnAc) & store < 6 °C		WHEN PARTY OF THE	
Relinquished by / Signature	Signature			*	Date/Time	***************************************		Yes	S No	£ 12	Micro (Na ₃	*Micro (Na ₃ S ₂ O ₃ + EUTA) & store < 10 °C	IA) & Stor	0 < 10 C	00 0		
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Received by / Signature	nature				Date/Time			The state of the s		*	BOD, TSS	, TVSS, Tu	ırbidity, Su	*BOD, TSS, TVSS, Turbidity, Surfactant, Sulfate store < 6 °C	fate store	< 6 °C	
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						,					*Cr (VI) (pH 9.3 - 9.7	9.3 - 9.7 -	(NH ₄ ) ₂ SO	$-(NH_4)_2SO_4)$ & store $\leq 6^{-C}$	5.0	production of Applications	- Company of the Comp
All sample(s) met proper *preservation requirements.	t proper *prese	ervation requi	irements.		Yes	1	No		nt(set/for	7	NAMES AND DESCRIPTION OF THE PERSON OF THE P	ethebreibbereiß mehrbischenschmer	sections and an arrangement	and proportion of the contract		SCHOOLSHOOTS AND CHARGE	ACCOUNTED TO SERVICE OF THE SERVICE
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ild CGN: Container Group Number

Sample Type: C=Composite, G=Grab Matrix: L= Liquid , S = Solid NOTE: ALL APPLICABLE INFORMATION MUST BE COMPLETED PRIOR TO ACCEPTANCE.

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	ECHANDESON/920031/PACECLAGEDED	ANALYSES REQUESTED, CGN & NUMBER OF CONTAINERS	na disensi di kalenda d			3										ind Water ank	iives	stals check	*O&G (pH<2 - HCI, check in section) & store $\le$ 6 °C	And the second s	೦,9₹	၁ွင	*COD, NUT, Phenols (pH<2 - H₂SO₄) & store ≤ 6 °C		*BOD; TSS, TVSS, Turbidity, Surfactant, Sulfate store <	*NUT Non Acidified, Conductivity, Organics store $\leq$ 6 $^{\circ}\mathrm{C}$	*Cr (VI) (pH 9.3 - 9.7 - (NH ₄ ) ₂ SO ₄ ) & store $\leq$ 6 °C	ADAMEDICAL PROPERTY OF A STATE OF
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CHAIN OF CUSTODY	PASSES ATTENDED OF THE PASSES	SREQUI	The state of the s	+partestato y tabella							-						arangamentovive Cover-	*Hg, M	-WOODSHIP	CN, (p	*Sulfid	*Micro	,000 *	*TOC	*BOD,	NUT I	*Cr (V	:cristaro, area
CHA	Particular school control persons in service	ANALYSE	and the second constitution of the second constitution and	was no state of the													irement	uired,	ples were	r coolers	±<8 ′رٌ	<u>(</u>	3	, )			1-110	+24
	the winder of the substance of the subst	***	Surginaliza (Mandalary of Estimate) de albesta de visto de Sincidente es vez	Service Control of Con				40444									Temp. Requirement	Where required,	submitted samples were	fransported in coolers	maintained at≤6 'C.	\	≯	七			371	ii S
	general and a second	No.	8 . s. (16) T8T	- Tarrana de Locales de Composito de Composi	Ш	£ 4% 3			1	-			4				Te		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	trail	ma	\ \ \	8	[ ]				***************************************
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NMENTAL RAII AVE	SEACH, VA	TEL: 757-460-4214 FAX: 757-460-6586			SAMPLED BY	æ	-			***************************************					and the state of t			Date/Time (	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time		>	se x
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CENTRA			otopotomoy		DATE	6/22/2011										X-11		2000	frage	3							4	ements.
		er Bay.	Hanover County_Totopotomoy	se Only	SAMPLE POINT	FNE										2/3 FL		る。なり、大	(KMZ	11	9		***************************************					мапон геции
H 4		Cleaning wastewater every day for a better Bay.	81	HRSD Use Only	PROJECT CODE	HAN TO		artinisti ja ja karita ja karita karita mananan karita karita karita karita karita karita karita karita karita	-	***************************************	-				A CONTRACTOR OF THE CONTRACTOR	31B 18 2/3 FUI		\$	nture (	gnature	ture	gnature	rfure	gnature	ture		2 2 2 2 2 2 3	oroper prese
		Cleaning wastewate	PROJECT NAME/CODE:	Recurrences	CUSTOMER SAMPLE ID										-	COMMENTS: 4		Relinquished by / Signature	Received by / Signature	Relinquished by / Signature	Received by / Signature	Relinquished by / Signature	Received by / Signature	Relinquished by / Signature	Received by / Signature		41 com (0)0100000	Ail sample(s) met proper "preservation requirements.

Sample Type: C=Composite, G=Grab
NOTE: ALL APPLICABLE INFORMATION MUST BE COMPLETED PRIOR TO ACCEPTANCE.

CGN: Container Group Number

# SUBCONTRACTED DATA

# Virginia Institute of Marine Science Department of Environmental and Aquatic Animal Health Route 1208 Greate Road Gloucester Point VA 23062 804-684-7654

# ANALYTICAL REPORT

Project Code:

HAN_TO

Sample Point:

FNE

Sample Date: 06/22/11

				Report			Analysi:
Analyte	Method	Unit	Result	Limit ¹	Analyst	Analysis Date	Time
TBT	Unger	ng/L	<30	30	ET	06/27/11	9:20

VIMS is a non VELAP certified lab.

MOLE:	N	0	ŧ	e	
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Authorization: Ellen Travelstead Ellen Muelsteel Date: 06/27/2011_____

Report Limit is lowest concentration at which quantitation is demonstrated.